THE

JOURNAL OF GAS LIGHTING,

WATER SUPPLY, & SANITARY IMPROVEMENT.

VOL. XXII. No. 531.] LONDON, FEBRUARY 11, 1873. [25TH YEAR.] DOUBLE No. Price 1s.

RAMSAY'S NEWCASTLE CANNEL COAL. Analysis—10,000 cubic feet of gas per ton of coal; 26-candle gas; 13¼ cwt. coke per ton of coal.

RAMSAY'S PATENT CONDENSED COKE.
DO. GARESFIELD COKE.

RAMSAY'S FIRE-CLAY ARTICLES.

GAS-RETORTS, introduced 1828. FIRE-BRICK WORKS, established 1804. FIRE-CLAY SANITARY PIPES, CHIMNEY-TOPS, and all Goods made of Fire-Clay. The Fire-Clay is worked from Blaydon Main Colliery, is of excellent quality, and no expense spared in perfecting every article. The FIRE-BRICKS (marked "RAMSAY") are to be seen in all parts of the world, and the Works are the most extensive in the Kingdom.

Manufactories—Derwenthaugh, Swalwell, and Hebburn Quay, near Newcastle-on-Tyne; and London Wharves—Falcon Wharf, No. 30, Bankside; and Honduras Wharf, Cubit Town. Large stocks kept.

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Patentees of the Standard Gasometers for the Government, and of the

IMPROVED DRY GAS-METERS.

These Meters are warranted to measure correctly and not to vary. Their acknowledged superiority has brought them into general use more rapidly than any Meters hitherto manufactured.

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OR
15, MARKET STREET, MANCHESTER.

COWEN'S PATENT FIRE-CLAY RETORTS.

JOSEPH COWEN and CO.,

BLAYDON BURN, NEAR NEWCASTLE-ON-TYNE,

Were the only parties to whom a PRIZE MEDAL was awarded at the GREAT EXHIBITION of 1851, for "GAS-RETORTS and OTHER OBJECTS in FIRE-CLAY," and they have also been awarded in the INTERNATIONAL EXHIBITION of 1862, the PRIZE MEDAL for "GAS-RETORTS, FIRE-BRICKS, &c., for EXCELLENCE of QUALITY."

J. C. and Co. have been for many years the most extensive Manufacturers of Fire-Clay Retorts in the United Kingdom; and orders for Fire-Clay Retorts of all shapes and dimensions, Fire-Bricks, and every other article in Fire-Clay, are promptly executed at their Works as above.

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Coal Office,
QUAY SIDE, NEWCASTLE-ON-TYNE.

JOHN RUSSELL AND CO.,

THE OLD TUBE-WORKS, WEDNESBURY;
AND
THE ALMA WORKS, WALSALL.
Established at the commencement of Gas Lighting.

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16, SOHO SQUARE,
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35, 36, 37, & 39, GRANBY ROW, MANCHESTER.

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J. R. and Co. make all kinds of Tubes and Fittings for Gas, Steam, and Water; Gun-Metal Cocks, Stocks, and Dies; Galvanized Tubes and High-Pressure Tubes, &c.

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AND
STREET-LAMP
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ESTABLISHED 1830.

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WILLIAM COCHRAN CARR begs most respectfully to thank the Metropolitan, Provincial, and Continental Gas Companies for their patronage for several years past, and to intimate that he has rebuilt and enlarged his extensive premises for the manufacture of CLAY RETORTS; and that he is now prepared to execute the largest orders with punctuality and despatch. Orders for FIRE-CLAY RETORTS, of all shapes and sizes, FIRE-BRICKS, and all other articles in Fire-Clay, executed on the shortest notice, and on the most reasonable terms.

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Messrs. ROMANS, being lessees of several Gas-Works, have their Cannels tested in the ordinary working process, thus securing for their customers a guarantee beyond mere laboratory experiments.

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(INVENTED & PATENTED IN 1844,)

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COMBINING ALL THE LATEST IMPROVEMENTS,

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FOR GAS, STEAM, & WATER, EITHER BLACK, GALVANIZED, OR ENAMELLED.

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For Gas, Steam, Water, &c.

SOLE LICENSEES AND MANUFACTURERS for the United Kingdom of

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THE UNVARYING WATER-LINE GAS-METERS,

IMPROVED DRY GAS-METERS, in Cast-Iron or Tin-Plate Cases;

STATION-METERS, ALL SIZES, up to 15 feet Square, with PLANED JOINTS;

Experimental Meters, Photometers, Pressure-Gauges, Governors, Test Holders, &c., &c.

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CAST & WROUGHT IRON TANKS FOR DITTO;

PURIFIERS, CONDENSERS, SCRUBBERS, RETORTS, VALVES;

IMPROVED WROUGHT-IRON RETORT-LIDS, CROSS-BARS, & SCREWS;

AND GAS APPARATUS OF EVERY DESCRIPTION.

SOLE MANUFACTURERS OF LIVESEY'S PATENT GASHOLDER MAN-LID,

By use of which Man-lid, inlet and outlet pipes can be examined and cleansed without loss of gas in crown of holder, or ingress of atmospheric air.

ROOFS, GIRDERS, BRIDGES, AND BOILERS OF ALL KINDS.

Drawings, Specifications, and Estimates supplied on application.

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PARIS, 1867.

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LONDON, 1862.

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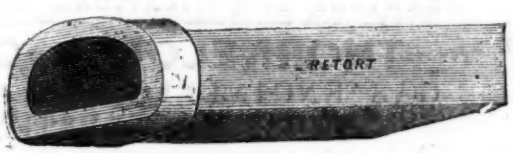
KING BROTHERS,

STOURBRIDGE FIRE-BRICK AND RETORT WORKS.



KING BROTHERS beg especially to call the attention of Gas Companies to the superiority of their Retorts, which are made from the celebrated STOURBRIDGE FIRE-CLAY. Mr. King has patented a Kiln for burning Retorts, by which Patent all Cold Air is excluded from the Kiln while burning, thus rendering them FREE FROM CRACKS AND CORRECT IN FORM. By great care in Manufacturing, combined with the advantages in burning, a VERY SMOOTH SURFACE is obtained, rendering them less liable to carbonize.

Retort Ovens, Fire-Bricks, Guards, Saddles, Rabbitted Bars, Flues, and Quarries, are all Manufactured of the same quality of Clay.

Every Retort and Brick is branded "King Brothers, Stourbridge."

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CALLEY'S GENUINE "TORBAY" PAINT

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THESE PAINTS ARE SPECIALLY PREPARED, and are most valuable for protecting and arresting rust on all Ironwork, AND WILL COVER TAR EFFECTUALLY; they adhere strongly, acquire great solidity, do not crack, flake off, or blister by heat, and they resist the effects of SULPHUROUS AND GASEOUS EXHALATIONS.

They are used extensively at a large number of GAS-WORKS, on Gasholders, Purifiers, and all classes of Ironwork; also by Government, Railway Companies, &c.

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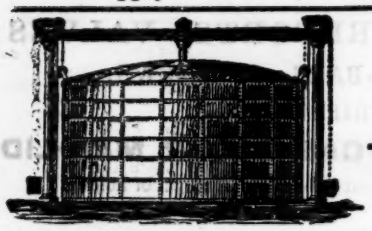
Of every size and shape, and of the best quality; also of White and Coloured GLAZED BRICKS, SANITARY PIPES, &c., &c.

The F. I. Co. have the exclusive right to make and sell Fraser's Patent "Ribbed" Gas-Retorts in Fire-Clay.

In order to meet the constantly increasing demand for their Gas-Retorts, the F. I. Co. have recently made such an addition to their premises as will enable them to execute expeditiously the largest home or foreign orders.

Apply as above, or to the London Offices, 15, NEW BROAD STREET, E.C.



IMPROVED GAS APPARATUS,

FOR CITIES, TOWNS, VILLAGES, &c.,

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SOLE MANUFACTURERS of B. W. THURSTON'S IMPROVED SCRUBBER, CONDENSER, and WASHER, in use in many of the principal Gas-Works on the Continent.

PATENTEES of the IMPROVED COMBINED PURIFYING APPARATUS, so eminently adapted for Exportation.

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And all kinds of GAS APPARATUS.

Wrought-Iron Roofs, Bridges, and Girders; Steam, Hot Water, and Range Boilers; Tanks, Cisterns, &c.,

And all kinds of Wrought-Iron Work.

DRAWINGS, SPECIFICATIONS, and ESTIMATES FURNISHED.

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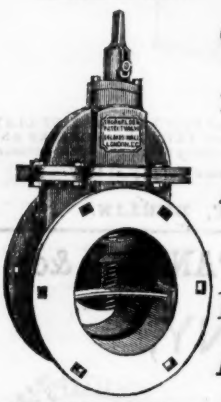

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THORNELOE'S PATENT VALVE

For GAS and WATER, from 3 to 24 inches,

SUPPLIED FROM STOCK.

They are now in use at the following Gas-Works in London:—

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SOLE MAKERS OF

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PATENT REGULATING DIP-PIPE.

Prospectus, with Price Lists and Particulars, on Application.

A REGISTER KEPT OF SECOND-HAND GAS APPARATUS.

EXPERIENCED WORKMEN SENT TO ANY PART OF THE COUNTRY.

Address, 34, LONDON WALL, LONDON, E.C.

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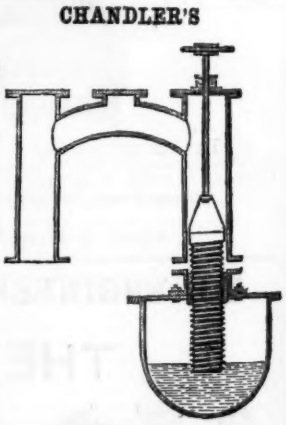

PATENT DIP-PIPE.

TO INVENTORS AND PATENTEES.

MR. W. H. BENNETT, having had considerable experience in matters connected with Gas, Water, and Sanitary Improvement, begs to say that he continues to assist Inventors in the perfection of their designs, and to obtain for them PROVISIONAL PROTECTION, whereby their invention may be secured for Six Months; or LETTERS PATENT, which are granted for Fourteen Years.

Patents completed, or proceeded with at any stage, thereby rendering it unnecessary for persons resident in the country to visit London.

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WOOD GRIDS

FOR PURIFIERS AND SCRUBBERS,

AND

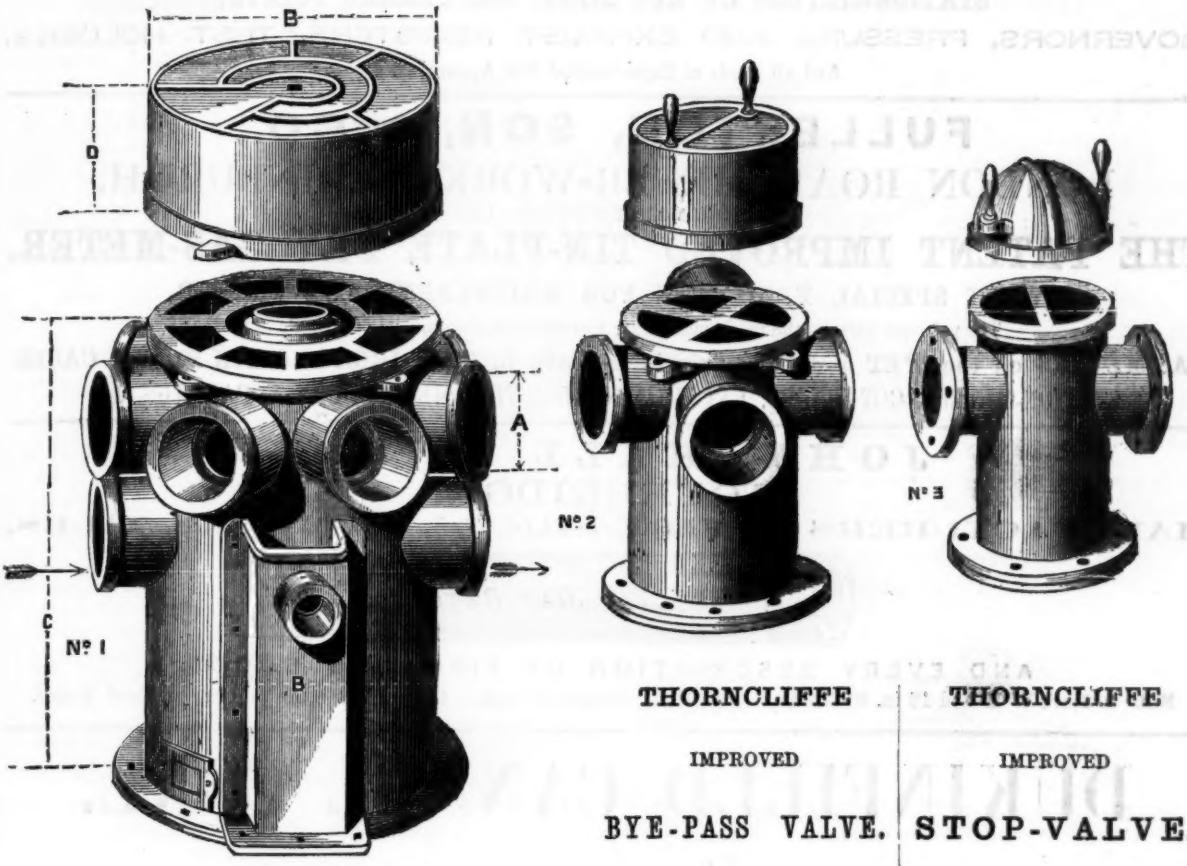
CONTRACTOR FOR GAS APPARATUS & MAIN-LAYING.

THE THORNCLIFFE IMPROVED CENTRE-VALVE,

MANUFACTURED BY

MESSRS. NEWTON, CHAMBERS, & CO.,

THORNCLIFFE IRON-WORKS, NEAR SHEFFIELD.



Sizes of the

THORNCLIFFE IMPROVED CENTRE-VALVE.

		Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
A	Bore of Pipe...	4	5	6	7	8	9	10	12
B	Diam. of Body.	16	20	23	26	28	31	34	40
C	Height of Tank.	33	35	38	43	46	48	51	56
D	Depth of Cover.	8	9	10	11	12	13	14	16
	Total height...	41	44	48	54	58	61	65	72

THORNCLIFFE IMPROVED BYE-PASS VALVE.

SIZES

From 3 ins. upwards.

THORNCLIFFE IMPROVED STOP-VALVE.

SIZES

From 3 ins. upwards.

In all cases the Covers are cast heavy enough to resist any required pressure.

The advantages derived from the adoption of these Valves are so manifest and cardinal that in the immediate character of the change—the simplicity of the machine—the facility affording for cleaning out connexions between Valve and Purifier—the perfect collection and delivery by suitable overflow of the ammonia, at a greatly diminished depth from ground-line over the old form of Valve—the advantage of connecting on the same level, and at any angle, or opposite to each other, the inlet and outlet pipes without dip or rise—the clear acquisition of space in the purifying-house, by being able to place the boxes nearer together, the new Valve being entirely under the floor—and lastly, though of the greatest importance, the passage of crude and unpurified gas during the change is minimized to the merest fraction, thus preventing the fouling by impure gas the delicate machinery and easily affected exposed movements of the station-meter, thereby preventing the introduction of the enemy (unpurified gas) into the gasholder. Also a dead abutment is offered to all back pressure, imparting thereby to the gauges, governors, and hydraulic seals, a steadiness of action never realized with the once famous, but now fast becoming obsolete, Hydraulic Centre-Valve.

N., C., and Co. also Manufacture and Erect

PURIFIERS, CONDENSERS, SCRUBBERS, GASHOLDERS, ROOFS,

And every description of Gas Machinery.

TENDERS GIVEN FOR WORK FIXED COMPLETE IN ANY PART OF THE KINGDOM.

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Manufacturers of

IMPROVED CONSUMERS WET GAS-METERS

IN CAST-IRON CASES.

THE UNVARYING WATER-LINE GAS-METER,

AND

IMPROVED DRY GAS-METERS;

STATION-METERS OF ALL SIZES, with PLANED JOINTS;

GOVERNORS, PRESSURE AND EXHAUST REGISTERS, TEST HOLDERS,

And all kinds of Experimental Gas Apparatus.

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SOLE MANUFACTURERS OF

THE PATENT IMPROVED TIN-PLATE DRY GAS-METER,

WITH SPECIAL FACILITIES FOR ADJUSTMENT AND REPAIR,

The principal parts of the mechanism being accessible by the removal of a single Screw.

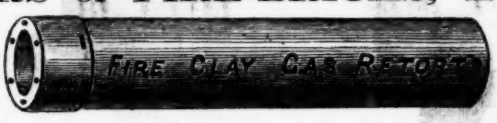
GAS-METERS on the WET and DRY principles made in CAST-IRON and TIN-PLATE CASES.

STATION-METERS, GOVERNORS, EXPERIMENTAL & TEST METERS, GAS APPARATUS, &c.

JOHN HALL & CO.

STOURBRIDGE,

MANUFACTURERS of FIRE-BRICKS, LUMPS, & TILES,



AND EVERY DESCRIPTION OF FIRE-CLAY GOODS.

N.B.—A Stock of 15 and 16 in. CIRCULAR RETORTS always on hand. Other kinds made to order on short Notice.

DUKINFIELD CANNEL COAL.

THE DUNKIRK COAL COMPANY.

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WILLIAM INGHAM AND SONS,

WORTLEY FIRE-BRICK AND RETORT WORKS,

Near

Leeds.

W. INGHAM and SONS, having for many years been extensively engaged in the Manufacture of

RETORTS AND FIRE-BRICKS FROM THE CELEBRATED WORTLEY FIRE-CLAY,

beg to call especial attention to their RETORTS, which have for many seasons proved to be unsurpassed in quality by any in the Kingdom, their FREEDOM FROM CRACKS and the ADHESION OF CARBON rendering them worthy the attention of all parties interested in the making of Gas.

The Works are of such magnitude as to ensure the prompt execution of orders to any extent.

Estimates for Setting, or Bricklayers sent when required.

GAS OVENS IN SEGMENTS OF EQUAL QUALITY.

A large Stock of Fire-Bricks, Fire-Clay, Terra Cotta, and Drain-Pipes of all Sizes kept in London at Mr. ALFRED WILLIAMS, Wharf, 64, Bankside, Southwark, where all particulars of Prices, &c., may be obtained.

N.B.—*Export orders continue to have prompt attention.*

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SOLE MAKERS OF

MORTON'S PATENT SELF-SEALING RETORT-LIDS,

WITH

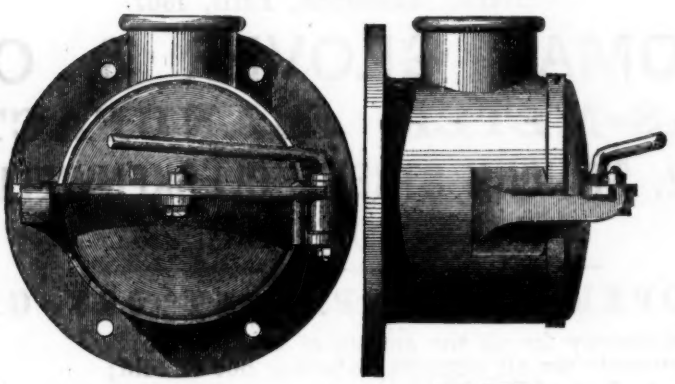
HOLMAN'S PATENT ECCENTRIC FASTENINGS.

OVER 7000 IN USE.

NO LUTING.

LIDS HINGED TO MOUTHPIECES; NO LIFTING ON OR OFF.

NO SCREWS FOR FASTENING.



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SIMPLE.

ECONOMICAL.

DURABLE

EFFECTIVE.

NO DUPLICATE LIDS REQUIRED.

These Lids are proved by many eminent Gas Engineers to be the most efficient, saving much time, labour, and expense; are opened and closed as quickly and with as little trouble as an ordinary furnace door, and by their use the Retorts are soundly sealed during the whole period of carbonization.

THESE LIDS ARE IN USE AT THE FOLLOWING (AMONG MANY OTHER) GAS-WORKS:—

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„ London Gaslight Company.	„ Edinburgh Gas-Works.	„ Carmarthen Gas-Works.
„ Independent Gaslight Company.	„ Manchester Corporation Gas-Works.	„ Merthyr Tydfil Gas-Works.
„ Phœnix Gaslight Company.	„ Salford Corporation Gas-Works.	„ Ystrad Gas-Works.
„ South Metropolitan Gaslight Company.	„ Rochdale Corporation Gas-Works.	„ St. Alban's Gas-Works.
„ West Ham Gas Company.	„ Liverpool United Gas-Works.	„ Over Darwen Gas-Works.
	„ Birkenhead Gas-Works.	„ Aylesbury Gas-Works.

The Morton's Lid is made circular in form, that being the most convenient and suitable shape. It can be used for Retorts of any section, by adapting the Mouthpiece casting from the D, oval, or other shape, at the back, to circular in front.

The following important Testimonial, among others, has been given:—

The Gaslight and Coke Company. Engineer's Office, 6, Westminster Chambers, Nov. 14, 1871.

Dear Sir,—In reply to your inquiry, I have the pleasure of stating that the whole of the Mouthpieces at Beckton have Morton's Lids attached to them, and they have given us every satisfaction. We have 2160 in use.—I remain, yours truly, (Signed) F. J. Evans.

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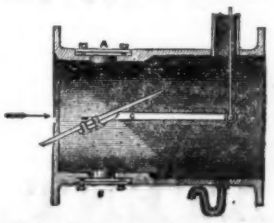
In this Governor a Throttle-Valve is substituted for the ordinary suspended Cone, all external communication being avoided by placing the Lever or Radius Arm (shown at C on the drawing) inside the Valve-Chamber, upon the Disc. The Disc is carried upon steel centres, upon which it is accurately balanced and turns freely. The friction in working is thereby reduced to a minimum. This Governor is extremely sensitive to alterations of inlet or outlet pressure, and renders a large actuating holder unnecessary.



London Gas-Works, Nine Elms, Dec. 25, 1871.

Gentlemen,—The 18-inch Hunt's Patent Throttle-Valve Governor supplied by you to this Company has been in use for about six months, working very satisfactorily; it obviates entirely the oscillation which sometimes occurs with the ordinary Governors, with the annoyance and danger arising therefrom. The efficiency of this Instrument, together with its compactness and lowness of price, ought to ensure its general adoption.

Messrs. Tangye Brothers and Holman. (Signed) Robert Morton, *Engineer.*

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7th, May be fixed either above or below the level of the Lights;
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CONTENTS.

Notes upon Passing Events :— PAGE
Mr. Rawlinson on Ventilation . . . 89
The Commissioners of Sewers and the Snow Difficulty . . . 90
Tramways in the City . . . 90
Bathing Places on the Thames and in the Parks . . . 90
The Free Bridge Movement . . . 90
The Livery Companies and Technical Education . . . 90
The Purchase of the Irish Railways by the State . . . 91
The Purchase of Northumberland House . . . 91

Leading Article :—
The Gas and Water Bills for 1873 . . . 91

Circular to Gas Companies :—
Application to the Board of Trade by The Gaslight and Coke Company under the Act of 1868 . . . 92
The Gaslight and Coke Company *v.* The Vestry of St. George, Hanover Square . 92
The Bill of the Lincoln Gas Company . . . 92
The Gas Bills of 1873 . . . 92
Meeting of the Patent Gas Company . . . 92
The New Gas Company . . . 93

Correspondence :—
The New Gas Company . . . 93
Gas-Mains . . . 94
The Gas Generator Company . . . 94
Domestic Hot-Water Cisterns . . . 94

Parliamentary Intelligence :—
House of Commons—
Constant Water Supply of the Metropolis . . . 94
Digest of Sanitary Laws . . . 94
The Failure in the Coal Supply . . . 94

Legal Intelligence :—
Vice-Chancellor's Court—Duke of Sutherland *v.* The Tunstall Board of Health . . 95
In the Exchequer Chamber—The Gaslight and Coke Company *v.* The Vestry of the Parish of St. George, Hanover Square . . . 95
Court of Queen's Bench—
Ex parte the Local Board of Worksop *v.* The Worksop Gas Company . . . 96
Feilden *v.* The Local Board of Over Darwen . . . 97
Westley *v.* The South Staffordshire Water-Works Company . . . 97
Ex parte the Birmingham Gaslight and Coke Company . . . 97
Court of Exchequer—Masefield *v.* The Metropolitan Board of Works . . . 97

Miscellaneous News :—
Dr. Stevenson's Report on the Illuminating Power of the Gas supplied to St. Pancras during the Month of January . . . 94
Death of Mr. Samuel Barber . . . 94
Death of Mr. Walter Ford . . . 94
Holmfirth Gaslight Company . . . 94
Woolwich, Plumstead, and Charlton Gas Consumers Company . . . 94
Bodmin Gas Consumers Company . . . 97
Meeting of The Gaslight and Coke Company . . . 98
Major Bolton's Report on the Water supplied to the Metropolis during the Month of January . . . 98
San Paulo Gas Company . . . 98
Meeting of the Patent Gas Company . . . 99
Meeting of the East Barnet Gas Company . . . 102
Liverpool Corporation Water Accounts . . . 103
Leeds Corporation Water and Gas Accounts . . . 103
Manchester (Corporation) Water Supply . . . 103
Meeting of the Cambridge University and Town Gaslight Company . . . 103
Meeting of the Cambridge University and Town Water-Works Company . . . 104
Metropolis Gas Supply . . . 105
Metropolis Water Supply . . . 106
Increase in the Price of Gas at Macclesfield . . . 1 7
The Native Guano Company . . . 107
Assessment of the Warrington Gas-Works . . . 108
The London Gas Stokers Strike . . . 108
Serious Escape of Gas at Manchester . . . 108
An American View of the Gas Stokers Case . . . 108
Return by the Metropolitan Association of Medical Officers of Health of the Average Composition and Quality of the Metropolitan Waters in January, 1873 . . . 108
The Adulteration of Food Act . . . 108

Register of New Patents :—
Clark, A. M.—Joint for Lids or Covers of Gasholders . . . 108
Smith, G. H.—Preventing Corrosion of Iron Pipes . . . 108
Munro, A.—Extracting Oil, &c., from Bituminous Substances . . . 108
Campbell, D.—Treatment of Sewage . . . 108
Gedge, W. E.—Meter and Motive-Power Apparatus . . . 109
Caratti and Church—Heating . . . 109
Symington, W. W.—Measuring the Flow of Sewage, &c. . . . 109
Manent, J. J. F.—Pumps . . . 109
Lake, W. R.—Gas-Burner . . . 109
Rigod, J. F. M.—Carburetting Air . . . 109
Sellars, J. C.—Obtaining Hydrocarbon Liquids, Gas, and Coke . . . 109
Lafrogue, J. F.—Manufacture of Gas . . . 109
Cochran, J.—Valves . . . 109
Clark, A. M.—Illuminating Gas . . . 109
Bell, J. and T.—Discharging Horizontal Retorts . . . 109
Fleury, F. G.—Water-Waste Preventers . . . 109
Pritchard, L. W.—Valves . . . 109
Holmes and Hollinshead—Manufacturing Gas . . . 109
Box, W. W.—Manufacture of Gas . . . 109
Carter, G. H.—Gas-Stoves, &c. . . . 109
Fish, R.—Revivifying Materials . . . 109
Applications for Letters Patent . . . 111
Grants of Provisional Protection . . . 111
Inventions protected for Six Months . . . 111
Notices to Proceed . . . 111
Patents which have become void . . . 111
Share List of Metropolitan Gas and Water Companies . . . 110
Price Current . . . 110

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THE JOURNAL OF GAS LIGHTING,
WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, FEBRUARY 11, 1873.

Notes upon Passing Events.

MR. ROBERT RAWLINSON is not satisfied with our "Notes" on his ventilating suggestions. He sends us a copy of his letter to *The Times*, republished as a pamphlet, saying, "If you care to look at it you "will fail to find that I recommend persons to sit in rooms with open "windows in cold weather. No man in London takes more care of him- "self than I try to do. I require both warmth and fresh air, and keep "my house warm, but at the same time ventilated. I think this is indi- "cated in my letter." We have looked again at the letter, and find ourselves in the good company of several of Mr. Rawlinson's female friends, of *Punch*, and of *The Times* itself, to which Mr. Rawlinson has addressed a letter so long that it found its way into the supplement. We have had many skirmishes with Mr. Rawlinson on sanitary questions and sanitary works, and often criticized his statements with considerable severity; but on this occasion we are bound in justice to say that his suggestions are nearly all in the right direction. As to ventilation, we agree with him that elaborate apparatus, even when constructed in the most perfect manner on the most correct principles, are unfit for any but those large establishments where it is possible to retain the whole services of at least one intelligent man to keep them in order. In ordinary houses supplies of fresh air must be chiefly obtained through the windows and doors, and these may, without any extraordinary expense, be made much more useful than they are. Over every gaselier special arrangements should be made for removing the hot and impure air. We like the notion of louvres over dining-room doors, to be opened when a large party is assembled, with extra lights. Of course the great object of all ventilating arrangements is to obtain a constant supply of fresh air without draughts. The window of a dining-room opened at the top a couple of inches before the guests assemble at dinner is much less likely to create a mischievous draught than if only opened when the room has become intolerably hot. The late Mr. Appold used the steam-engine he employed in his trade to pump fresh, but not cold, air into his dining-room, as required. He kept his eye upon an ingenious thermometer, which indicated rising heat by the curling of an ornamental snake's tail, and never allowed the room, however crowded, to rise beyond an agreeable heat. As occasion arose, he pressed his foot on a pedal under his table, and set the steam-engine to pump in a supply of fresh air. But this was one of the toys of an ingenious mechanic, whose ample means and simple tastes enabled him to ride the ventilation hobby very hard. It was an arrangement which could only be imitated at very great expense in ordinary houses or mansions. The great point is to educate the public mind up to the necessity of getting rid of the impurities produced by the breath of human beings and the use of artificial lights. As to warming a house, there is no subject on which more ignorance prevails among people who are supposed to be educated. Amongst the easy classes, the recent lively discussion cannot fail to do a great deal of good, especially as the mere price of coals will check the wastefulness habitual to the English people. It must first of all be clearly understood that to warm a room, or all the rooms of a house, while all the passages are cold, is impossible. Begin by warming your hall, ante-rooms, and passages, and then, with a good fire, there can be no reason for being roasted in front and frozen behind. Warm water apparatus can be adapted to the halls and passages of houses of moderate size at very reasonable expense. The tenders for warming a public hall 100 feet long by 70 feet wide with hot water varied from £200 to £500, and the £200 system was the best. A learned antiquary has addressed to *The Times* a lively, amusing account of the warming apparatus of a Roman magistrate at Silchester. But to English tastes roasted air is detestable. The effects of German and Russian stoves are anything but agreeable. The wastefulness of an open fire-place, which is the most agreeable of all warming apparatus—in appearance, at any rate—may be greatly modified by proper attention to the construction of the grate and chimney. Mr. Rawlinson calls attention to the unhealthy, often poisonous, condition of many fine old mansions to which, in the course of this century, water-closets connected with cesspools in the basement have been added. We happen to know a remarkable case of a family poisoned by the exhalations from water-closets and cesspits and pools, which occurred not many years ago in Bedfordshire. Mr. Rawlinson's position enables him to publish most of his essays at public expense; hence, we presume, his fearful verbosity. Two columns of small type of *The Times* are more than average householders care to wade through. We give his suggestions for

Existing Houses.—If the basement is stuffy, have the drains examined and ventilate the rooms (cellars). Use a Sherringham; ventilate the cloak-room through the wall, at the celling; ventilate water-closets, house-maids closets, and also ventilate the head of the staircase, as previously described. Water-closets should have fixed means for ventilation through the wall, at the ceiling (independent of windows), equal to a slit 12 inches long and 1 inch wide.

Bedrooms may be permanently ventilated by one or two openings—say, 12 inches by 9 inches, through the partition wall, to corridor, landing, or staircase, and having a plate of perforated zinc on each side, which will answer the required purpose of checking the draught.

The chimney-tops of London houses show in grim array various forms of pipes, cowls, and turncaps, and it will be news to many persons to be told that these hideous contrivances are not necessary. The late Mr. Billings must have the credit of having applied the best remedy for flue-tops ever used. In place of contracting the flue outside the chimey-top by a pipe, he has placed this down the flue, from the top, inside, and finished with a terra-cotta cap and mid-feather to divide flue-top from flue-top, the terra-cotta top or cap having a slope at an angle of 45 degrees. Look at Marlborough House. There is not a single external pipe or cowl in any chimney stack or flue to be seen. Some of the War Office chimneys, some of the Admiralty chimney, the Treasury buildings, Somerset House, and other public offices and many private houses, have also been so treated—my own house, for instance; and in all cases the draught of the flue is improved. But Mr. Billings insisted on treating the bottom of the flue as well as the top. His principle was to reduce the ordinary flue of 14 inches by 9 inches to a circle of 9 inches or 6 inches, as he considered the room might require. I have not a smoky room in my house, and I have neither pot, pipe, nor cowl on any flue, but Billings's tops, as described. My neighbours have pipes and cowls, and smoky rooms as well, the houses being on a plan similar to mine. With a 6-inch opening into and out of a flue 14 inches by 9 inches, the space between the top of the flue and the bottom acts like a cushion or spiral spring, and so admits of the upward current of smoke flowing out more evenly and regularly than with

the full width of the flue; which, when open, admits a down or counter draught, the tendency of which is to chill and stop or retard the regularity of the upward flow of smoke.

The public mind, agitated by the continual and extraordinary rise in the price of coal, is prepared to receive projects for manufacturing gas from some other material. What chemistry may eventually do it would not be safe to prophesy. It cannot be forgotten that the most eminent engineers of the day while they encouraged experiments, and subscribed funds for those experiments, entertained grave doubts on the subject of long sea telegraphs. This only is certain up to the present time. The new Patent Gas, on which a considerable capital was invested at Barnet and elsewhere, has failed miserably, to the heavy loss of those who purchased the rights of the ingenious promoters. The latest scheme is still in the stage of experiment, and, notwithstanding the flattering words in the City article of *The Times*, the promoters have been unable to complete a satisfactory experiment in the presence of an experienced gas engineer. This may be taken for granted, that as one of the greatest expenses of gas-works lies in the machinery for distribution, should any extraordinary improvement in the manufacture of gas be achieved, the first persons to profit by it will be the existing companies. To none would a cheap process be so valuable.

The Commissioners of Sewers for the City of London are, with all their faults as the model local authority in the whole metropolis, the one doing all work connected with the health and comfort of the population under their charge better than any Vestry or Local Board. It was not, therefore, without curiosity that we looked at the report of the first meeting of the Commissioners of Sewers after the first heavy fall of snow for two years. The report is edifying. Formerly, when a fall of snow took place, a regular chorus of indignation against the contractors for scavenging was raised; one or two victims were picked out and fined; a good many angry letters appeared in the local papers, and there the matter ended, until, in the course of years, a snowstorm returned. At present the Commission does its own scavenging, as it should in the richest city in the world, and makes efficiency the first consideration, cost the second; consequently the commissioners are very quiet about their inevitable shortcomings. A commissioner having asked "what steps "had been taken for the removal of the snow," the chairman said:

> Four hundred extra men had been employed to assist in its removal, but there was a difficulty on all these occasions to get men to do the work at wages of 8s. or 4s. a day, as they could earn £1 or more in sweeping the fronts of private houses. Another difficulty was that each man had to be supplied with a shovel, and it was found, in some cases, that both man and shovel quickly disappeared. These difficulties had, however, been surmounted. No less than 5000 loads of snow were removed, one-half being thrown into the Thames, and the rest being deposited for the present in various open spaces in and around the City. Mr. Staples reminded the court that whereas in the West-end and elsewhere each householder was obliged to be responsible for the cleanliness of the footway in front of his house, in the City the commission had undertaken to sweep both pavement and carriage-way. That being so, it was most satisfactory to find that the snow from every footway in the City was cleared before eight o'clock on Monday morning. The chairman supplemented this information by saying that the footways so cleansed were upwards of 100 miles in length.

If the footways that intersect the square mile that composes the City amount to 100 miles, what must be the extent of the footways and streets of the whole metropolis, which, if a circle were drawn round the districts covered with buildings, excluding the fields and market gardens, would give a diameter of over ten miles? It is very easy to invite the vestries of the metropolis to remove all the snow that falls in 24 hours, especially in those parishes which have no access to Thames; but the man who goes into estimates, and calculates the bulk of even five acres of snow four inches deep, will ask where and when the difficulty of getting enough horses and men at an hour or two's notice has been overcome. Of course, it is a difficulty that must be grappled with in the best manner possible; but it is one of those sudden emergencies—we had almost said calamities—which it is much easier to grumble at than to overcome. The secret history of the circumstances which led to the repeal of the regulation which compelled every citizen to clean the footpath before his house is rather amusing. Out of the City the police see that this regulation is enforced; but in the City, a large majority of the Common Council being tradesmen, it was found impossible, because the City police are promoted, rewarded, and pensioned by the Common Council, and they tacitly declined to execute orders which would have made enemies of their paymasters. For this concession the City pays in rates, and has the pavement-clearing process performed better and more rapidly than any other metropolitan district, so no one has any right to complain. The extension of the system to other streets of shops outside the City would be desirable; but, looking at the expense, is scarcely probable.

The only non-official interest that tried to clear the streets after the first fall of snow was the North London Tramway Company, by hand labour. The tramway cars were running when no omnibuses, and scarcely any cabs, were to be found. Experience will probably suggest to these companies the advantage of using an adaptation of the Canadian snow-plough in future years, on the next return of what are called, in mild years, old-fashioned winters. Perhaps if the snowstorm had occurred a little earlier, and had been more severe, the Common Council, alarmed by the total disappearance of City omnibuses, might have come to a more rational conclusion as to the extension of tramways to the Bank and Post-Office. The committee of the Common Council did recommend the extension from Goswell Street to the Post-Office, although, for some inscrutable reason, they reported against the extension from Finsbury, past the Moorgate Street station, and on to the blank space in Princes Street behind the Bank. But when this report was discussed we were carried back to the legislative ideas of Colonel Sibthorp, or a little later, when Mr. Thompson Hankey opposed a railway under Clapham Common to the Crystal Palace, on the ground that the morals of the maid-servants would be corrupted by the navvies who excavated the tunnel, while the beer of the parishioners would be turned sour by the rolling of the trains. The Common Councilmen were up in arms against an improvement that might drive a carriage from a shop door. If carriage customers are to be consulted, of course there would be no tramways, for nothing can be more mischievous to carriage wheels and axles; but if the public are to be considered, the tramway is the locomotive improvement of the age. A very short time will elapse before steam-engines will be introduced on tramways, and then the Corporation of London will have an additional excuse for opposition. It cannot be denied that to admit tramway cars into the heart of the City, and the thick of a cross traffic, might lead to difficult complications. But to say A as to Finsbury and Goswell Street, and refuse to say B as to the Post-Office and the Bank, places the ambitious and busy Mr. Bontems and his followers in a very ridiculous position in the eyes of all who do not look at public questions through the spectacles of a City shopkeeper.

The Corporation have a grand idea under consideration; indeed, almost too grand for execution. Nothing less than a series of floating baths on the Thames, in which the water is not only to be filtered, but warmed up to a tepid point. We really cannot realize the last luxury, desirable although it may be, but hope the best. In the meantime, a Metropolitan Bathing Association is at work with the humbler, but not less useful, aim of providing bathing-places in such places as the lakes of Victoria and Battersea Parks, and the Serpentine, in Hyde Park. It seems that to establish a bathing-place in Victoria Park might turn 200 ladies away from an accustomed walk, but would accommodate 4000 men and boy bathers. Whether this sacrifice to the male sex would not form an additional grievance on the "rights of women" platform remains to be seen.

The Metropolitan Board are to find considerable support in their their attempt to free the metropolitan bridges from toll. According to Mr. M'Arthur, one of the members for Lambeth, the working classes pay £21,000 a year in tolls. It may be presumed that they save this amount in rent on the Surrey side of the river, a saving that will partly disappear on the abolition of the tolls; still these tolls are a nuisance, and the working-class argument will be one additional counterbalance to the formidable opposition of the Corporation to the Metropolitan Board plan.

It would be absurd to undervalue the power the City of London holds and exercises for opposing any sort of internal reform. On questions of reform external to the City, the large majority of the citizens are advanced Liberals. An amusing bit of evidence on this point came out at a meeting for distributing prizes at the Birkbeck Institution—an institution for communicating scientific knowledge to the masses, founded by friends of Lord Brougham and the Society for Diffusing Useful Knowledge. The Lord Mayor, Sir Sydney Waterlow—a man whose education and self-culture have been considerably above the average of Lord Mayors—and Sir Thomas Dakin, whose early pursuits almost compelled some knowledge of science, had a rather amusing dialogue. As citizens they were bound to praise the City Livery Companies, who spend nearly all the money they are not compelled as trustees to lay out on education and what is mis-named charity, on what is equally mis-named hospitality; but, as advocates of extended education, they were obliged to admit that a college for scientific and technical education was much needed in the metropolis. But both these intelligent gentlemen spoke with bated breath. The terror of Common Council and Livery Company censure evidently weighed heavily upon their words:

> Lord Mayor Waterlow sincerely hoped that the guilds in the City would turn their attention to the improvement of the technical education of the young people in the City and metropolis. For the last two or three years they had been talking about it, but only one or two companies had done anything. The Joiners who had given the prizes was one of the poorest of the companies, and if they could do so much, surely the richer companies could do much more. They had great facilities in their large halls, which, without foregoing altogether those hospitalities of which he had been a willing partaker, they could devote to occasional lectures on technical subjects. He would take the company in which he served his apprenticeship. They could give lectures to young men in the printing trade upon the great progress which printing had made in this country. They could have models showing the progress of machinery from the first machine down to the complicated machinery now used in *The Times* office. They would thus show the men not only how to watch a machine, but how to understand it, so that in case of any accident they would readily know what was the cause of it. By such work the guilds would be enabled to fulfil the purposes for which they were formed centuries ago; and he for his part would do his best to stimulate them. They were first established for the control of trade, with a view to the production of the best possible manufactures. The time had gone by when such control could be exercised, so that they should now influence trades by teaching men how to work at them, and giving the greatest possible facilities for improvement in them.

The ex-Lord Mayor, Sir Thomas Dakin, was rather shocked at the very mild suggestions of his brother alderman. He hastened to assure the meeting that the Cabinet was not inclined to waken the sleeping lion of London, especially as the students desirous of obtaining technical education were not likely to blow up Clerkenwell Prison or attack Chester Castle. That is to say, that is what he meant; his words were milder, but not less pregnant of meaning:

> The Lord Mayor had said they were only talking about it. He hoped that they were in the way of doing something practical. He might say, as a member of one of those bodies, that it was not only their duty but wisdom to do something. The Lord Mayor had alluded to their large revenues, which were mostly in trust for special purposes—as of education and charity, and in what perhaps might be a little compressed—their hospitalities. Now, he had had some time since a conversation with Mr. Gladstone upon this very matter. He asked him (the speaker) if he could tell him anything about the wealthy City companies; how did they dispose of their revenues? He said he had been asked to make a grant from the Consolidated Fund to found a University of technical knowledge, and, as it was impossible for him to make such a grant, he thought some portion of the splendid revenues of the City companies might wander in that channel.

Thinking that was a very significant hint, he told Mr. Gladstone that something of that kind was contemplated, and that it would be better done by gentle suasion than by any pressure from without, and that, speaking as a member of his party, he would not recommend him to attack the City companies. Mr. Gladstone replied: "Do not think of that; I would rather disestablish the Irish Church over again."

The question of the purchase of the Irish Railways by the State is to be raised again this session as an Irish grievance. Lord Clanricarde, a very good specimen of an Irish patriot, has already announced on what terms the transaction ought to be effected. It must be remembered that in this case the Government has shown no more anxiety to make the purchase than that natural clinging at straws where it is important to pacify a nation that nothing can satisfy. It is the accepted rule that where the owner of any property is compelled to sell it for public purposes, there shall be added to the actual value 10 per cent. The Marquis of Clanricarde, having exercised all his not small political influence to compel the Government to purchase the Irish railways, now modestly proposes—not a discount, such as might fairly be expected, for the exchange of good security for dividends when those dividends are paid, and a return of capital when no dividends are paid—but an addition to the highest market value of Irish railway shares of 25 per cent.! This proposal is quite in accordance with all precedents when the State has to purchase anything—Irish. It seems that there are certain railways in Ireland, which work well and earn dividends, which would work still better if amalgamation were carried out, and district groups formed, as in England and Scotland; that there are other lines, which charge rates absurdly high and make no profits for the shareholders, while the directors and officials divide the spoils; and, finally, there are certain railways made for the profit of the promoters and contractors, which afford no reasonable prospect of traffic enough to pay working expenses. The theory, therefore, is that Government should step in and relieve Irish shareholders of their investments, at an advance of 25 per cent.; rectify the bad management of too numerous boards and officials, by abolishing them after providing them with handsome compensation; reduce the rates and fares of the paying lines to such a level as will satisfy the residents of the districts traversed; work the lines now worked at a loss, in order to develop new traffic; and, finally, at public expense, make all needful extensions and connexions. The prospect of this plan, founded on the incompetence of Irish railway directors, is not encouraging to British taxpayers. It has one merit, if it be a merit: it would largely increase the patronage of the Irish Court, and extend the area over which Government officials might be shot, vitriolized, or otherwise punished, especially if any Englishman or Scotchman were introduced for the purpose of teaching Irishmen anything.

The Metropolitan Board have made another great hit—have secured another foundation for enduring popularity—in the purchase of Northumberland House. This will, for the first time, make the Thames Embankment a thoroughfare to the City, by opening a straight access from the whole West-end by Cockspur Street. The terms are satisfactory. The Duke of Northumberland would have received more than half a million from a jury if the board had ever gone there. Some years ago it was valued at that sum in a projected building speculation. After making a wide street, the Board expect to sell sites for £275,000. The bargain, so fair for both sides, disposes of all the sentimental rubbish uttered about the "Mansion of the Percies." A modern nobleman would almost as soon live in Bishopsgate as in the Strand. The gardens that opened down upon the Thames have long since disappeared in coal wharves, which have lately been extinguished with a handsome trade compensation to the ground landlord. The duke will be able to build a new house westward. It is to be hoped that he will be more fortunate than his brother of Buccleuch, who is reported to have paid a quarter of a million for the mean squat edifice he has erected in Whitehall Gardens.

THE GAS AND WATER BILLS FOR 1873.

We propose to include in our future summaries of projected legislation both Gas and Water Bills, and commence in the present number with Bills to confer statutory powers on gas companies hitherto without them.

The *Aberystwyth Gas Bill* is promoted for the dissolution and reconstruction of the Aberystwyth Gas Company, hitherto carried on under a deed of settlement. The capital of the original company was £8000, in 800 shares of £10 each, 695 of which have been fully paid up. Those in the incorporated company are to be called *old* shares. The remaining 125 are to be called *new* shares, and, in addition to the capital represented by these, the company seek power to raise a further £7000 by the issue of shares, ordinary or preference, or both. The interest payable on this additional capital is on a sliding scale, varying from 7 per cent. when gas is supplied in the borough of Aberystwyth, above 6s. 8d. per 1000, to 10 per cent. when the maximum price does not exceed 5s. 10d. The original company has no mortgage debt, so power is asked to borrow £1687 on the already paid-up capital, and £2850 on the new capital as it is called up. Power is also sought to issue debenture stock. All necessary provisions are made for the transfer of the undertaking from the old to the incorporated company, and all the usual powers of a gas company are sought by the bill. Power is asked to provide a special fund for the acquisition of the fee simple of the present works, or to defray the expense of removing them. It is wished also to provide a reserved fund not to exceed £1600. The maximum price of gas is to be 7s. 6d. within the borough of Aberystwyth, and 8s. 4d. beyond. The illuminating power is to be 14 candles, the prescribed burner being an Argand consuming 5 feet per hour. Gas is to be supplied from sunset to midnight at a pressure of 7-10ths, from midnight to sunrise at 5-10ths, and from sunrise to sunset at 4-10ths, "such pressure "respectively to be upon the outlet of the governor supplying the street "mains." A testing-place is to be provided within twelve months of the passing of the Act.

The *Bournemouth Gas and Water Bill* provides for the dissolution and reincorporation of the Bournemouth Gas and Water Company, Limited. The capital of the company is to be £100,000, in £10 shares. So many of these shares as are equal in number to the number of shares in the limited company issued up to the time of the passing of the Act, are to be vested in present proprietors, subject to all calls and other payments to which the original shares were liable. Power is asked to borrow £25,000 under the usual restrictions, and to issue debenture stock. The gas limits include a number of townships, &c., in Dorset and Hants, portions of some of which are excepted as being already supplied either by the Poole Gas and Coke Company or the Christchurch Gas Company. The price of gas is not to exceed 6s. within the limits of the Bournemouth Improvement Act, nor 6s. 6d. beyond, so long as the price of the best Newcastle coal delivered at the works does not exceed 20s. per ton. When the coal exceeds 20s., the company ask power to charge an additional 1d. per 1000 for every increase of 1s. beyond the 20s. Gas is to be supplied at a pressure of 8-10ths from sunset to midnight, and from midnight to sunset at 6-10ths, measured at the main as near as may be to the junction of a consumer's service-pipe. The illuminating power is to be 14-candles, the prescribed burner being the London Argand, No. 1, with chimney according to circumstances. Some not altogether intelligible provisions are proposed with respect to the supply of public lights; but it would seem that at the option of a local authority the lamps may be supplied on the average meter indication system, one meter to ten lamps, the meters being provided at the joint expense of the company and local authority. The company may, however, fix as many more meters as they please at their own expense. Power is asked to make contracts for the supply of the public lights for seven years.

The *Chigwell, Loughton, and Woodford Gas Bill* provides for the dissolution of the Chigwell and Woodford Bridge Gas Company, Limited, and the incorporation of the proprietors under the title of the Chigwell, Loughton, and Woodford Gas Company. The proposed limits are the parishes of Chigwell, Loughton, and a part of Woodford. The capital of the limited company is £15,600, in 3000 £5 shares, all fully paid up, and the company have a mortgage debt of £6000. It is proposed in this Bill to raise additional capital to the extent of £25,000, in £10 shares, the dividend payable on which is limited to 7 per cent. if issued as ordinary, or 6 per cent. if preference shares or stock. The £6000 already borrowed is to be authorized as the existing mortgage debt, and if any be paid off, power is sought to reborrow to the like amount. In respect of the new capital, power is asked to borrow £4000 under the usual restrictions. The company may only convert borrowed money into preference or ordinary stock with a maximum dividend of £5 per cent. All necessary provisions are made for the dissolution and reconstitution of the company with all the powers usually conferred on gas undertakings. Fourteen-candle gas is to be supplied at a maximum price of 7s. per 1000. The pressure is to be 8-10ths and 6-10ths within the usual hours, and measured at the main as near as may be to the service-pipe of a consumer. The burner prescribed is the No. 1 London Argand, with chimney according to circumstances.

The *Durham Consumers Gas Bill* provides for the dissolution of the Durham Consumers Gas Company, Limited, and the reincorporation. According to the preamble, the limited company was formed last year with a proposed capital of £50,000, in £1 shares. Only £14,000 have been subscribed, and only £700 have been paid up. It may be presumed that the company have no works. Their object apparently is to compel the sale of the undertaking of the City of Durham Gas Company, and to resell to the Corporation of Durham. The provisions need not be noticed unless they pass into an Act.

The *Durham Gas Bill* is promoted to effect the dissolution and reincorporation of the City of Durham Gas Company, for which all necessary provisions are made. The capital of the original company is £36,000, nearly all of which is paid up. The Bill proposes to raise an additional £36,000, the dividend on which is limited to 7½ per cent. if ordinary, or 5 per cent. if preference capital. The old company had no mortgage debt, so power is asked to borrow £9000 in respect of the original capital, and £9000 in respect of the new; the latter under the usual restrictions. Borrowed money may be converted into capital, ordinary or preference, with a maximum dividend of 5 per cent. Power is asked to issue debenture stock, and to acquire in all ten acres of land; gas only to be made on the site of existing works. All the usual powers and privileges of a statutory undertaking are sought by the Bill. The maximum price of gas is not to exceed 5s. when the price of coal delivered at the works is not more than 12s. per ton. When coals are above that price the maximum price of gas may be increased by one-eighth part of the excess of cost over and above the 12s. To determine the amount of such excess, the directors may make yearly contracts for the amount of coal estimated to be required within the year. The illuminating power of the gas is to be 14 candles. It is to be delivered from the works at pressures of one inch and of 7-10ths within usual hours. The test burner is to be the London Argand, No. 1.

The *Harrow Gaslight and Coke Company, Limited*, apply for incorporation and statutory powers. The preamble of the Bill states that the company was formed in 1872, with a capital of £30,000, in £10 shares, and that £20,849 has been paid up; that the company purchased a piece of land and gas-works thereon of Mr. John Chapman, for £24,359, of which £19,359 has been paid, and that the company has no mortgage or bonded debts. (They would appear to owe Mr. John Chapman £5000.) The purchase and improvements of works made from time to time, having absorbed a sum equal to the present capital of £30,000, power is asked by the Bill to raise an

additional £30,000, and to borrow £7500 in respect of the original capital, and a like sum on the additional; the latter under the usual restrictions. Power is also sought to issue debenture stock. Gas of 14-candle power is to be supplied at a pressure of 8-10ths and 6-10ths in the usual hours, measured on main as near as may be to the junction of the service-pipe. No particular burner is prescribed; it is merely said one consuming 5 feet per hour. The maximum price is to be 6s. per 1000 feet within a radius of one mile from the King's Head, in Barnet, and 6s. 8d. beyond. The district includes parts of the parishes of Pinner and Harrow, and the whole of the parishes of Perivale and Northolt.

The *Partick, Hillhead, and Maryhill Gas Bill* is to incorporate and confer statutory powers on the Partick, Hillhead, and Maryhill Gas Company, Limited. The capital of the incorporated company is to be £150,000, of which £100,000 is called the original capital, and is in £5 shares. The additional capital is to be raised in £10 shares, the dividends on which are limited to 7 per cent. or 6 per cent., according as they are ordinary or preference. Borrowing power to the usual extent is asked for in respect of both old and new capital. It is also sought to issue debenture stock, and to convert borrowed money into stock with a maximum interest of 5 per cent. Provisions are made for the formation of a reserve-fund not to exceed £20,000, and for a depreciation-fund not to exceed 25 per cent. of the original cost of the works, &c. Another section is proposed to limit the application of the 35th section of the Gas-Works Clauses Act, 1847. The maximum price of gas is to be 4s. 7d. per 1000 feet. It is to be supplied at a pressure of 8-10ths or 6-10ths within the usual hours, tested on the main near as may be to the junction of a service-pipe. The gas is to have the illuminating power of 25 candles, tested by a union jet burner consuming 5 cubic feet per hour under a pressure of 5-10ths.

The *Pontefract, Tanshelf, and Carleton Gas Company, Limited,* promote a Bill for incorporation with the usual statutory powers. The capital of the incorporated company is to be £32,000, one-half of which is the capital of the original company. The usual borrowing powers are applied for, and also power to issue debenture stock. Gas of 14-candle power is to be supplied at a pressure of one inch and 7-10ths of an inch within the usual hours, measured at the works. The price is not to exceed 5s. per 1000 feet when the price of coal is not higher than 16s. per ton. When above that price, one-eighth part of the excess over 16s. may be added to the charge for gas. For the ready determination of the amount of such excess, the directors are to make yearly contracts for the estimated amount of coal required for the undertaking:

In this, as in all the Bills before mentioned, the usual provisions are made for the winding up of the original company, and the transference of the undertaking, with all rights and liabilities, to the incorporated. These provisions are so well understood that they need not be referred to. The new feature in two of these Bills is the introduction of a clause to regulate the maximum charge for gas according to the price of coal.

Circular to Gas Companies.

THE Gaslight and Coke Company have appealed to the Board of Trade for a revision of the scale of illuminating power and price. As this is the first appeal made under the Act of 1868, the proceedings will be of great interest to the metropolitan gas companies. The commissioners appointed by the Board are to be three competent and impartial persons, one of whom may be a barrister-at-law if required. These commissioners may inspect the works, accounts, and documents of the company, and have power to summon any person to give evidence, and may obtain such legal and other advice and assistance as they think fit. In fixing the illuminating power and price they are to observe the following rules:—1. They shall fix such power and price as shall be calculated to yield the company a dividend for the year attaining as near as may be to 10 per cent. 2. They are to take into account any saving or economy they may be of opinion might have been effected by amalgamation of the companies. [In the case now to be considered all the amalgamations contemplated have been effected.] 3. They shall not fix an illuminating power lower, nor a price higher, than the minimum of power and maximum of price fixed by the Metropolis Gas Act, 1860; and 4. Subject to the foregoing rules, they are to fix the illuminating power as high and the price as low as circumstances admit. It is announced that the application will be opposed by the Corporation of London and by the Metropolitan Board of Works, so that the fullest inquiry will take place. Having regard to previous appointments of the Board of Trade in connexion with gas matters, great curiosity will be felt as to the three competent and impartial persons to whom the inquiry will be delegated. The work would seem to require specially qualified engineers and a good accountant; only a barrister with exceptional qualifications could be of use as a commissioner, for no question of law can possibly arise. The inquiry will, of course, be public, and the proceedings will be fully reported in our columns.

The case of *The Gaslight and Coke Company* v. *The Vestry of St. George's, Hanover Square*, decided last week by a Court of Error, appears to us to involve serious consequences to other companies besides the plaintiff company. Putting the case in the fewest words, it amounts to this: The vestry refused to pay for common gas supplied to public lamps because it contained more than the 20 grains of sulphur allowed by the Metropolis Gas Act, 1860, and the Court of Error has decided that they were justified. The contention of the company, of course, was that they were relieved from the obligations of the Act of 1860 by their Act of 1868, which provided that if the City of London Gas Act, then pending, should become law, the company should be subject to the provisions of that Act without as well as within the City of London. By a sad mischance, however, the very next clause enacted that "nothing in this Act contained shall "exempt the company or their gas-works from the provisions of the "Metropolis Gas Act, 1860;" and the court held that this confirmed the obligation of the company to supply gas outside the City with less than 20 grains of sulphur. A similar difficulty is avoided in the Acts of the Imperial and South Metropolitan Companies by the addition, in the clause we have quoted above, of the words, "except so far "as those provisions are varied by this Act." To the metropolitan companies still under the Act of 1860 who may send out gas containing more than 20 grains of sulphur the consequences appear to be that any local authority—and, we presume, any private consumer—may refuse to pay for such gas, and, if they or he be sued for the debt, the defendant might urge that the refusal was justified by this decision of a Court of Error. It appears to us, not learned in the law, that the true remedy of the vestry of St. George's would have been to sue the company before two justices for the penalties prescribed by the Act of 1860 for an excess of sulphur, and the proceedings they actually took look like a mean evasion of their real obligations. The amount of sulphur in gas consumed in public lamps is a matter of no consequence whatever. If all that is alleged be true, the quantity in gas consumed in shops and private houses is a serious matter; and we beg the ratepayers of St. George's to take notice that their magnanimous vestry adopted no steps to protect the health and goods of their constituents, and merely disputed a sum which, if wholly saved, could have no appreciable effect on the rates. It was a contemptible proceeding, which we feel certain no other vestry in the metropolis will have the meanness to follow.

Untrammelled by restrictive legislation, the Lincoln Gas Company have pursued a highly successful career, which has naturally excited the envy of so many people in Lincoln as have not the good fortune to possess shares in the company. Obliged now to go to Parliament for statutory powers, by which they will necessarily be brought under the operation of the restrictive laws, they seek to capitalize the profits they have expended on extensions of their undertaking. For this purpose they have had the undertaking valued, and the present value is estimated at £80,000. A qualified statement has been made in the Lincoln Town Council, that the sum actually expended out of profits does not exceed £35,000; but it will be for the opponents of the company to prove that the estimated value is not correct. On this point we shall, no doubt, have the usual conflict of evidence for a parliamentary committee to decide between. The other points in dispute with the Town Council may be easily arranged. The maximum price proposed, not necessarily to be charged, is certainly not higher than the present condition of the coal market justifies, and the people of Lincoln can hardly be so selfish as to wish to prevent the outskirts of the borough from having a supply of gas on the mere suspicion that it may delay a reduction of price in the borough itself.

The Gas Bills for the present session—abstracts of which we commence to publish to-day—present few features which call for notice. The novelty in a few is the clause providing for an increase of price in case of an advance in the price of coal beyond a certain sum. One-eighth part of the amount in excess of the cost on which the maximum price has been calculated is fixed upon in most cases as the amount which may be added to the price of gas. This is a very reasonable proposal, which will, no doubt, be readily assented to by the Legislature. Clauses prescribing the pressure at which gas is to be delivered are common this year, in consequence of the incorporation of the Gas-Works Clauses Act, 1871. In one or two cases it is proposed to measure this pressure at the outlet of the governor supplying the street mains. This, we may point out, will afford no security for a satisfactory supply to the consumer. The pressure should, in all cases, be measured at the main, as near as may be to the junction of the service-pipe of a consumer, and it is so provided in the majority of instances. One or two companies promote bills simply to enable them to increase the price of gas. We hope that the Gas and Water Companies Association will succeed in persuading the Board of Trade to bring in some general enactment to relieve companies from obligations imposed when nothing comparable to the present state of affairs could be contemplated. It is only right, however, that individual companies should look after their own interests; but trouble and expense might be saved by combination. The Bills to authorize local authorities to purchase undertakings call for but little remark. The terms of purchase, where they are disclosed, as in the Over Darwen and the Dumbarton Burgh Bills, seem to be fair to the companies. The competing Bill of the Dewsbury and Batley Corporation would, we should think, be strongly contested.

The full report of the meeting of the Patent Gas Company which we publish to-day will be read, no doubt, with great interest, and portions of it may be thought over with profit by people who feel inclined to invest in patent speculations. It is now admitted that all the company bought of Dr. Eveleigh was "the germs of an "admirable principle," and now the company have to find out how to work that principle without the assistance of the fortunate patentee. It is a very old story. When will people have the sense to make an inventor's reward depend upon the confirmed worth of his invention? The ready answer, of course, will be that in that case the inventor would have nothing to divide with the clever gentlemen who render such invaluable assistance in getting up a limited company, for it is pretty well understood that in most of these cases only a fraction of the money paid for the patent remains finally in the inventor's pocket. We do not here allude to the Patent Gas Company, the history of which is peculiar, but to patent schemes in general. To return. The loss on the year's working at

Barnet amounts to £1470, or, according to Mr. Stephenson, £1369. The amount is not large, and the cost of coal explains much; still it is a misfortune for the company that there should have been any loss. We will not say more, for it is clear that the company are still only experimenting with the "germs of an admirable principle." These germs, however, have been experimented upon by others, and always, we believe, with the result achieved by the Patent Gas Company.

Advertised by long reports in the daily papers—all ignorant of the merits of the scheme—and by repeated notices in the money article of the leading journal, the "New Gas Company" have, we have no doubt, succeeded in getting all the capital they asked for subscribed; nothing, therefore, we say to-day can affect their financial prospects. The title "New Gas" must have been the invention of some practical joker, for essentially the whole thing in its present phase, carburation and all, was patented by Mr. George Lowe 42 years ago, and earlier by Mr. Donovan. Do not let us be misunderstood. Neither of these gentlemen anticipated the specification we published in our last, the like of which, we believe, is not to be found in our patent records, the greatest repertory of absurdities extant. Mr. Ruck, and he alone, can claim the honour of having made that invention. To him, also, the later invention may be original; all we can say is that a hurried run through the two volumes of specifications relating to gas has revealed to us upwards of 40 patents for the production of the "special gas of a permanent character," which is the foundation of the new invention. The economy of this oft-revived process is dealt with in a communication which we publish to-day, signed "Engineer." Our correspondent might have put the absurdity of the scheme as applied to heating purposes in a still stronger light. There are, in fact, four consumptions of fuel to be provided for—fuel to generate steam, to superheat the steam, to put into the retorts, and to keep these retorts at a strong red heat; and when all is done, a simple calculation will show that the heating power of the gas produced is less than that of the fuel used in producing it. The letter of Mr. Sanders effectually disposes of the lighting gas. There are gentlemen still alive, we believe, who under the ablest chemical and engineering guidance spent £60,000 in trying to make water gas a success, *but failed*. We cannot anticipate any more satisfactory result from the present scheme. The light petroleum spirit, it is true, is a new feature. But the cost! It is impossible for us to contradict the statement made that the company have offers of millions of gallons for 9d. a gallon, when the present market price is 2s.; but, while accepting it, we must express our astonishment that petroleum merchants should be such arrant fools. Coalowners are very much wiser.

Correspondence.

THE NEW GAS COMPANY.

SIR,—Will you kindly permit me to occupy a small space in the next number of your JOURNAL to explain why my name appears in connexion with the prospectus of the "New Gas Company?"

You are perfectly aware that for some years past I have been almost exclusively engaged in connexion with gas undertakings abroad; and since my return to England I have been called upon to examine and report upon a variety of schemes brought forward, with the view of carrying out concessions for lighting cities in India, South America, Asiatic Russia, Turkey, and Italy. In determining the value of these concessions, I have been obliged to inquire into the cost of coals, or the possibility of substituting other materials for coal in producing the gas. In the course of my inquiries, my attention has been specially called to the so-called *Air Gas* project, and more recently to the process proposed to be carried out by the "*New Gas Company.*" I found the latter to be a modification of the *old idea*—the generation of combustible gas from water, by decomposing steam in retorts filled either with scrap iron, or coke, or charcoal, a process I had seen at work when I was an apprentice 40 years ago. From what I have seen of the so-called patent apparatus, I cannot discover that it is any improvement on previous inventions; in fact, its multiplicity of joints and connexions would be to me a serious objection to using it; for, having had to use a hydrocarbon apparatus, I know from experience the inconvenience that arises from leaky joints.

Having satisfied myself as to the generation of the combustible gas, I then inquired into the question of the material for carburetting the gas. This I found was a class of spirit given off in the earlier stages of the process of distilling petroleum oils. It unquestionably possesses high illuminating power, and is capable of remaining suspended in the gas at very low temperatures; in fact, I am bound to state that as a carburizing material was superior to anything I had hitherto met with. But then came the question of first cost, and the risk of carriage and storeage. I made inquiries among the largest manufacturers and importers, and found the prices quoted varied from 1s. 6d. to 2s. 6d. per gallon, and that the supply would be very uncertain; in fact, the information was so unsatisfactory that I felt bound to advise my clients not to entertain the project.

Within the last few weeks, the proposal to start a company to work what are called Mr. Ruck's patents, was mentioned to me by two of the gentlemen whose names appear in the prospectus. I told them very frankly what were the results of my previous inquiries, and my objections to the project, and I declined to endorse the statements made by the patentee. They then gave me three questions to answer. The first was, the practicability of making gas by the process; the second was, the localities most suitable for the use of such gas; and the third was, my opinion as to the value of the combustible gas process as compared with AIR GAS. To these questions I gave the replies which are to be found accompanying the printed prospectus, although I hesitated very much in giving my consent to let my report be printed *until the statements put forward by the patentee had been verified* both as to the novelty of the apparatus, and, what was of *infinitely more importance, the price* at which the carburetting material could be supplied.

I cannot find words to *express my surprise and annoyance* when I read the prospectus, and discovered that my name appeared in connexion with such absurd and unwarrantable statements.

So far from the compound gas being made 40 per cent. cheaper than coal gas, I know that it is cheaper to make 18-*candle gas*, with *coals at* 48*s. a ton*, than attempt to carburize water gas, even when wood and charcoal are comparatively cheap. I say this after many months of trial. Probably no one connected with gas lighting is more interested in discovering some means of generating gas more economically than from coal, because I could obtain many concessions for lighting important places in the interior of South America, Mexico, and India; but I have not yet met with any process that I can with confidence recommend.

With regard to the so-called new gas, it is in no way superior to the scores of previous inventions; and I fully endorse the opinion you expressed in the last number of the JOURNAL, that it is a pity patents are granted on such absurd pretexts as to novelty and utility, and that the public are called upon to furnish the capital to float such flimsy undertakings.

HENRY GORE.

SIR,—The "New Gas Company, Limited," with a tremendous flourish of trumpets, invites the public to subscribe a capital of £250,000 for the purpose of buying for £125,000 and working certain patents taken out or applied for by a Mr. Ruck, of East Greenwich, involving a method of producing two kinds of gases, one for heating and the other for illuminating purposes, the chief value of which is represented to be their great economy; their purity and brilliancy; the simplicity of the apparatus required for their manufacture; the reduction in the number of stokers employed in the proportion of 30 to 1; their adaptability to the lighting of houses, factories, mansions, and railway stations, &c.; and the facility of adaptation of the apparatus to existing gas-works at small cost.

The reports which have been distributed with the prospectus by no means corroborate these recommendations of the so-called new gas. "The process," we are told in the report of Messrs. Joseph Quick and Son and Mr. R. P. Spice, "is twofold, the first part consisting of the production of mixed gases by bringing superheated steam into intimate contact with highly-heated coke, or coke and iron or charcoal, in a *series of retorts*, through which it is passed in such a way as to effect, as nearly as possible, its entire decomposition; and thus a gas is generated composed of hydrogen, carbonic oxide, carbonic acid, and sulphuretted hydrogen, which is the *heating gas*."

"The sulphuretted hydrogen is taken out by passing the gas, on its way to the gasholder *after condensation*" (we are not told how this is to be effected), "through a purifier charged with oxide of iron;" and, if the removal of the carbonic acid is in any case required, this is to be effected by caustic soda. "The next step in the process is to pass the heating gas through rectified petroleum spirit of the specific gravity of about ·680, thus converting it into lighting gas."

The process for manufacturing heating gas, we are assured in the prospectus, is of "very great value." Such gas "can be produced at a cost of 7d. per 1000 cubic feet, available for the generation of steam for steam-vessels; and by its application the carrying capacity for cargo will be greatly increased." As for the illuminating gas, its cost of production is estimated at "under 1s. 8d. per 1000 cubic feet delivered into the gasholder, while the present coal gas, with coals at 26s. per ton, costs 2s. 4d. net per 1000 cubic feet."

Now, sir, I submit that so far from the so-called "Ruck's Patents" being worth £125,000, the whole process involves a scientific absurdity, and the preceding assertions can be easily demonstrated to be mere nonsense. John Bull is notoriously gullible, but he can hardly be expected to swallow them.

Let us examine first the process for making heating gas. The "simplicity of the apparatus" consists in—

1. A boiler and fire with which to generate steam.
2. The steam so obtained—composed, it will be remembered, of eight parts of oxygen to each one of hydrogen—is passed through a "series of retorts," containing highly-heated coke (also requiring fire to heat it), in which the steam is, "as nearly as possible, entirely decomposed." Thus a gas is generated, which is to be stored in a gasholder, and subsequently used as "heating gas," for the generation of steam in steam-vessels and for the purpose of economizing space for cargo.

This is the "simple apparatus" which would be the substitute for a fire under the steam-vessel's ordinary boiler, and the British public is invited to believe that if, instead of this boiler being heated, as at present, by the direct action of coal in combustion, a second boiler were placed alongside of it, together with a series of red-hot retorts, and perhaps a condenser and a gasholder as well, the steam from the second boiler, after passing through the retorts and being decomposed, would somewhere pick up more heat than it had received from the combustion of the fuel used to create it; bring this *additional heat* to bear upon the surface of the other boiler, and thus generate steam *more economically* than by the direct action of coal in a common fire-box!

The gentlemen who have reported upon these patents really appear to have overlooked the fact that, in order to procure steam from which to obtain their "heating gases," they must first make it, and that its generation requires the expenditure of a larger amount of caloric than they can ever again create by the combustion of the smaller volume of gas which they will obtain by the decomposition of that steam.

Then as to the illuminating gas,—Messrs. Quick and Son and Mr. Spice say that, "at the price at which you [who?] have offers of millions of gallons of petroleum spirit, we feel fully justified in stating that this gas of 16½-candle power may be manufactured at a cost of 1s. 7½d. per 1000 cubic feet." Why do they not tell us what that price is? The present price of rectified petroleum spirit would make their gas cost something like 5s. per 1000 cubic feet. Is the public expected to believe that *any* offer for "*millions of gallons*" of such spirit, at a price far below its market value, can be relied upon for a supply extending over a long period of years?

The "simplicity of the apparatus" for making illuminating gas is still more problematical than in the previously described process, for besides the boilers, the series of retorts, and the two sets of fires required for the "heating gas," it would be necessary in each of the "houses, factories, mansions, or railway stations" where the system is to be applied, to put up a condenser, a purifier, a vessel containing caustic soda, and a complicated apparatus for driving the "heating gas" through the rectified petroleum spirit, besides the ordinary gasholder and a fire-proof reservoir for the dangerous spirit.

That such a system should be called simple and economical, and that a saving of labour should be expected from its adoption—that it should be represented as easy of adaptation, at small cost, to existing gas-works, and worth as an investment £125,000 purchase-money—seem to be simply the effects of that hallucination to which inventors and promoters are so peculiarly liable.

ENGINEER.

SIR,—The editorial notice of the "new gas" in *Saunders's News-Letter* induced me to examine carefully the description given of Ruck's process in the certificates which accompany the prospectus. I fail to discover in the process described any essential difference between it and one for the same object which I patented in Ireland in 1833 or 1834. My specification was lodged in the Four Courts by the solicitors Archer and White, of Henrietta Street, and I still possess the grant, though now out of date. In my process steam was generated and superheated in a retort charged with fragments of cast iron heated almost to redness; the steam then passed into retorts charged with coke highly heated, and there was decomposed as described in Mr. Ruck's circular. The prepared gas was afterwards passed through volatile hydrocarbon to give it illuminating power. My operations were carried on at the works of the then Oil Gas Company, in Great Brunswick Street. There was an independent main-pipe, without any branches, employed to convey gas to the General Post-Office; it was also continued to the Rotundo. I sent the "water gas" through that pipe, having previously attached to it the gas-fittings of a shop in Great Brunswick Street, Messrs. Kinahan's, Carlisle Buildings; Messrs. Butler's, Medical Hall, in Sack-

ville Street; then we had the General Post-Office, and lastly the Rotundo. My experience was that as the distance from the works increased, the illuminating power of the gas materially decreased, which I attributed to the gradual deposition of the hydrocarbon vapour from the gas in its passage along the pipe. After the expenditure of much time and money I gave up the process as not being commercially or practically good as compared with coal gas. Almost contemporaneously with the date of my patent, a Frenchman, Jean Baptiste Molerat, took out patents for England and Scotland for producing gas from water, and giving it illuminating power by vapour of hydrocarbon. But previous to either my patent or that of Molerat, Mr. Michael Donovan, chemist and apothecary, of Clare Street, Dublin, took out patents for the three kingdoms for the same purpose. Donovan placed his hydrocarbon apparatus near the burner. Mr. Donovan displayed great perseverance and much skill in his endeavours to get his patent into use. The Trinity Board allowed him to experiment at one of the lighthouses at the mouth of the Thames—the North Foreland, I believe; however, the results were not satisfactory, and his patent was abandoned. Next, the late eminent gas engineer, Mr. George Lowe, patented a process for increasing the illuminating power of ordinary coal gas by the aid of the vapour of volatile hydrocarbons; it also was a failure. Three or four patents were afterwards taken out in France for decomposing water over charcoal or coke, and using the same means of giving illumination to the gases. These patents were duly reimported into England, but met with no success. If Ruck's patent is superior to former ones for the same purpose, it does not appear so in the description to which I have referred. The decomposition of water over heated coke, &c., is nothing new; Donovan and I are before Mr. Ruck in Ireland, and Molerat and others in England. If the combination of the vapour of volatile hydrocarbons with gases of any kind can be rendered sufficiently stable to remain in combination whilst transmitted through miles of pipes, then it would be better to adopt Mr. Lowe's method, and raise the illuminating powers of 12 or 14 candle gases to the stipulated standard by the vapours of hydrocarbons than to continue the use of the expensive and unprofitable cannel coal.—I remain, &c.,

GILBERT SANDERS.

Monkstown, Jan. 28, 1873.

GAS-MAINS.

SIR,—At the present prices demanded for iron, the cost of gas-mains is in many cases prohibitory to further extension. Cannot a cheaper material in some instances be efficiently employed for this purpose—say, where a long length of main-pipe is required as an extension to some village or suburb, *without any intermediate services*, would it not be practicable to lay and maintain, without excessive leakage, glazed earthenware socket-pipes, jointed with suitable cement?

Perhaps some of your readers have tested a main of this description for the specified purpose, and will kindly, by your favour, give myself and others the benefit of their experience. F. J. COLLINGWOOD.

Gas-Works, Rhyl.

[The cement is the difficulty. Earthenware pipes would answer admirably.—ED. J. G. L.]

THE GAS GENERATOR COMPANY.

SIR,—Mr. Bower writes for the profession, with an authority which you acknowledge:

"We want a continuous mechanical method of charging and discharging retorts entirely different to anything yet produced, which shall be rapid in action and produce good coke. This is the direction in which inventive genius should work."

In this definition of what is so urgently wanted, I read a plain designation of the gas generator (Porter and Lane's patent), which, I submit, possesses precisely those attributes which Mr. Bower indicates as essentially requisite to meet the wants of the times.

This claim I need not qualify by any apology for the coke, of which, as also of gas, we obtain a much larger yield per ton than ordinary.

As fuel for heating the retorts it is equal to the same weight of hard coke, and for domestic purposes it is for the most part far superior, while the residue is easily crushed and pressed into bricks like patent fuel, and at less cost than would be incurred in hardening the whole quantity by retaining it in the retorts for hours instead of the few minutes that suffice to pass it through the screw retorts.

Such compressed fuel will command a preferential sale at an extra price.

Feeling convinced that this invention offers the complete and only solution of the mechanical problem, the importance of which is so generally recognized, I earnestly bespeak the attention and co-operation of all interested in the manufacture of gas towards realizing its advantages.

London, Feb. 1, 1873. ROBERT PORTER.

DOMESTIC HOT-WATER CISTERNS.

SIR,—Although I should not ask for advice on a matter of purely domestic economy, perhaps you will allow me to do so when water-works are mixed up in it.

I have a bath heated from my kitchen thus—water *ad libitum*, delivered from our water-works into the cold-water compartment of a double cistern, and travelling by an inch lead pipe to the boiler behind my kitchener; vertical distance 15 feet, horizontal 30 feet. I believe the cold-water pipe goes to the bottom of the boiler.

The other compartment of the double cistern is furnished with a double lead pipe, also going into the boiler, the pipes being of unequal length in the cistern and boiler, the theory of the engineer who designed the work being that these two pipes would cause a circulation, and that we should get hot water more quickly. The pipes are carefully packed in a spout with sawdust to prevent radiation as much as possible.

The fire is not in fault, but we sometimes have the hot-water compartment 112, so that it has to be lowered, and sometimes so cold that there is no warm bath to be had, although the water in the boiler is nearly boiling. Now, what is the cause? An intelligent workman told me the other day the water ought to boil above. I suspect it is the double pipes, and that the plumber who fixed them, who was a sad thick-headed fellow, bungled them.

Now, I want to ask this question. Why will not one 2-inch pipe do instead of three 1-inch? If a kettle is put on the fire it boils, and if the lid were soldered on and the spout elongated 30 feet, and radiation excluded, or nearly so, it would with sufficient bottom heat boil there, and directly one 40 gallons of hot water or less were in the bath, we should let the cold water into the hot-water department of the cistern, which would give another bath before long. I submit there would be no danger of explosion, because the pipe never being emptied the boiler could never get red hot.

Oxford, Jan. 28, 1873. BOS PIGER.

DR. STEVENSON'S REPORT ON THE ILLUMINATING POWER OF THE GAS SUPPLIED TO ST. PANCRAS DURING THE MONTH OF JANUARY.—The maximum illuminating power of the gas supplied by the Imperial Company was 15·9, the minimum 13·8, and the average 15 standard sperm candles. The illuminating power was higher than during the preceding month, and was rather better than usual. Of impurities, ammonia was always present, though never in excessive quantity; whilst sulphuretted hydrogen was never detected. Sulphur in all forms was present to the extent of 26·1 grains per 100 cubic feet. It will be satisfactory to the vestry to learn that, with the recent advances in the price of coals, the gas has not deteriorated in quality.

Parliamentary Intelligence.

HOUSE OF COMMONS.

FRIDAY, FEB. 7.

CONSTANT WATER SUPPLY OF THE METROPOLIS.

Colonel BERESFORD gave notice that on going into committee of supply on Friday, the 7th of March, he would call the attention of the House to the necessity of a constant supply of water being given throughout the metropolis, and move for a select committee to receive evidence on the subject, and report thereon to the House.

DIGEST OF SANITARY LAWS.

Sir CHARLES ADDERLEY said last year an Act was passed which constituted local sanitary authorities all over this kingdom, and the session before an Act was passed which constituted and completed a central authority upon the subject in the metropolis. Having made this perfect central authority, the Government must either leave the machinery to rust and become useless, or enable the country to make use of it. It would be most unfortunate if at the very outset of sanitary reform the local government of this country should be placed in this odious and unpopular position, as the result of the labours of Her Majesty's Government. The subject has been before the House for two sessions in the form of a bill which did not deal solely with new legislation, but consolidated the provisions scattered about in various Acts, the greater part of which were wholly inoperative. By collecting the existing law on sanitary matters into one bill, the House would enable the authorities of the country to enforce the important sanitary laws now upon the statute-book. He should like to ask the Government whether the omission of this subject from the Queen's Speech was an admission that they were not prepared to complete the Sanitary Bill of last year. The members of the Sanitary Commission concurred with him in the advantage of reintroducing the bill which had been for two sessions already before the House. That measure had somewhat alarmed the House by its magnitude, but it had been much reduced in length by the bill of last session, and he hoped that the Government would encourage the Sanitary Commissioners by some assurance that they would be able to pass the measure recommended by them during the present session.

Mr. GLADSTONE: In answer to my right honourable friend, I am unable to say, on the part of my right honourable friend (Mr. Stansfeld) and the Government, that it will be in our power to introduce this session a digest or consolidation of the sanitary laws. My right honourable friend (Mr. Stansfeld) has gravely considered the subject, and he has arrived, with regret, at the conclusion that the moment has not yet come when he could deal with this subject with the prospect of success, and in a manner satisfactory to himself. If my right honourable friend (Sir C. Adderley) thinks it his duty again to submit his bill to the House, my right honourable friend, on the part of the Government, has every disposition to regard it with a favourable eye, knowing as they do the respect and sympathy due to the views and efforts of the right honourable gentleman and to his knowledge of the subject.

THE FAILURE IN THE COAL SUPPLY.

In reply to Mr. CORRANCE, who asked whether it was the intention of the Government to institute any inquiry, by commission or otherwise, into the causes which had led to the existing failure in the supply of coal,

Mr. GLADSTONE said: I cannot wonder that, in the present extraordinary and very exceptional state of the market for the supply of coal, the public interest that is felt with regard to it should find expression in the question of the honourable gentleman. And I may say that a proof that we do not regard the question of the supply of coal as absolutely beyond the view and action of the Executive Government may be found in the measure adopted by the Government some time ago, when a commission was appointed for the purpose of investigating and prosecuting an inquiry with respect to that supply. But, of course, the question of the honourable gentleman has reference to the momentary state of the market. Well, with respect to that subject, so limited, I will confine myself to stating that we do not intend to make any inquiry by commission or otherwise, and the reason we have arrived at that decision is that we doubt very much whether it is a subject in respect of which any prominent action or interference of the Executive Government would be advantageous.

DEATH OF MR. SAMUEL BARBER.—It is our mournful duty to record the death of this gentleman from disease of the brain, which took place on Saturday, the 18th ult., at his residence, the Grange, Hampstead. Mr. Barber was secretary of the Western Gas Company from the year 1848 until its amalgamation with The Gaslight and Coke Company in the autumn of last year, when he retired on a pension. He was mainly instrumental in raising the Western Company to the very prosperous condition at which it arrived, and until the last he took a warm interest in its affairs. He acted as solicitor for the five companies who made the districting arrangements in 1857—viz., the Imperial, Chartered, London, Equitable, and Western—and he took a prominent part in the various parliamentary inquiries which preceded the passing of the Metropolis Gas Act of 1860. He was appointed joint secretary, with Messrs. Chubb and Phillips, of the associated London companies, in the opposition carried on against the bill introduced into Parliament by the Board of Trade, at the instigation of the Metropolitan Board and the corporation, to amend the provisions of the Act of 1860. Mr. Barber had been for some time laid aside from active duty by the progress of the malady which has just proved fatal. He was in the 53rd year of his age.

DEATH OF MR. WALTER FORD.—We regret to have to announce the death of this gentleman, which took place on the 30th ult., at his residence, No. 159, Gray's Inn Road. Mr. Ford had for many years carried on an extensive business as a gas-meter manufacturer. He was a man of very amiable disposition, and was greatly respected by all who knew him. The shareholders of the Barnet District Gas and Water Company, of which company Mr. Ford was a director, have passed a resolution expressive of their sense of the loss which they have sustained through his death, and of their sympathy and condolence with his widow and family.

HOLMFIRTH GASLIGHT COMPANY.—The annual meeting of the shareholders of this company was held on Wednesday, Jan. 29—Mr. Henry Butterworth in the chair. The report of the directors did not make any recommendation as to the amount of dividend to be paid this year, but left it to the shareholders to decide. The high rates of wages and materials, and the heavy expenditure during last year, caused different opinions to be expressed as to the amount of dividend to be paid, and the resolution finally passed by a majority was that 4 per cent. on the shares be paid on the 1st of March, clear of income-tax. The retiring directors were re-elected for the next three years. It was resolved that the directors be requested to call a meeting of the shareholders for the purpose of applying to Parliament for increased borrowing powers and capital, and for the annual election of directors in rotation.

WOOLWICH, PLUMSTEAD, AND CHARLTON GAS CONSUMERS COMPANY.—At a meeting of the board of directors of this company, on the 1st ult., it was unanimously resolved that the best thanks of the directors, together with 100 guineas, be given to Mr. James Hunter, their engineer, for the skill and ability he has displayed in carrying out the recent extensions of these works, and that a copy of this resolution be presented to him under the corporate seal of the company. The above was presented to Mr. Hunter at the meeting of the board of directors on the 29th ult., by their respected chairman, John Hammond, Esq.

Legal Intelligence.

VICE-CHANCELLOR'S COURT.—Thursday, Jan. 30.

(*Before Vice-Chancellor* Wickens.)

Duke of Sutherland *v.* the Tunstall Board of Health.

Mr. Lindley, Q.C., and Mr. Joyce appeared for the plaintiff; Mr. Dickenson, Q.C., and Mr. Everitt appeared for the defendants.

Mr. Dickenson moved in this case, on behalf of the defendants, that the amendments to plaintiff's bill might be taken off the file. The suit was one instituted by the Duke of Sutherland as owner of the Trentham Estate, in the county of Stafford, through which flowed the river Trent, to the bed and soil of which the duke was entitled. It was alleged in the bill that the Trent was a sluggish stream, fed in its course by various tributaries, one of which was called the Fowlhag, or Fowl Brook. The defendants had, until recently, drained their district, containing about 14,000 souls, into the Trent and Mersey Canal. This, however, had been stopped by injunction, and the plaintiffs now alleged that they had turned their main sewer into the Fowlhag Brook, and thence into the Trent. The only question now before the court was with reference to an information, at the instance of the Attorney-General, which the plaintiff had, by amendment, tacked to his suit. This, it was contended, was a mere scheme by the plaintiff to patch up his suit, and to put the defendants in a position of inability to defend that which before they could with propriety and ease have defended. It was therefore submitted that the amendment ought to be taken off the file.

The Vice-Chancellor, without calling upon the plaintiff's counsel, refused the motion.

IN THE EXCHEQUER CHAMBER.—Saturday, Feb. 1.

(*Sittings in Error from the Court of Queen's Bench, before the* Lord Chief Baron, *Justices* Keating *and* Brett, *and Baron* Cleasby.)

The Gaslight and Coke Company *v.* the Vestry of the Parish of St. George, Hanover Square.

Mr. Besley appeared for the plaintiffs, and Mr. Streeten for the defendants.

This was an appeal by the plaintiffs from the decision of the Court of Queen's Bench, delivered in May last, by which it was held that The Gaslight and Coke Company, while subject to the additional obligations of their Act of 1868 in all parts of their districts, were not relieved from the obligations of the Metropolis Gas Act, 1860, in such portions of their district as lie beyond the limits of the City of London. The facts of the case were reported in the Journal, vol. XX., page 147, and the proceedings thereon before the Queen's Bench, sitting in Banco, in vol. XXI., page 455.

The case was, in the first instance, tried before Justice Mellor and a special jury, when it was suggested by the learned judge that there were questions involved in it which could not satisfactorily be disposed of at *Nisi Prius*, and it was agreed that a verdict should be taken for the plaintiffs, subject to a special case to be stated by Mr. Manisty as to the construction of the Acts, and in the event of judgment being in favour of the plaintiff, the damages, if any, beyond the amount paid into court to be determined by him. At that time the plaintiffs were represented by Mr. C. Pollock, Q.C., who also appeared for them before the full court, and the defendants were represented by Mr. Grove, Q.C. Both of these learned counsel having been since raised to the bench, could not take part in the proceedings on the present occasion, and accordingly on the case being called on they left the court.

The Lord Chief Baron said: I understand my brother Cleasby has the good fortune to be a shareholder in The Gaslight and Coke Company, and if so we must either dispense with his attendance, which I should be sorry to do, or we must have the consent of both parties to his remaining.

Mr. Besley: Of course, my lord, I consent.

The Lord Chief Baron: For which side do you appear?

Mr. Besley: The gas company.

Mr. Streeten: I am for the parish, and so far as I am concerned I do not see the least necessity for his lordship retiring.

Mr. Besley: Your lordships have already gathered that it does not fall upon my shoulders, according to the original intention, that I should argue this case. It was intended that Mr. Pollock should do so, as he argued the case in the Queen's Bench.

Justice Keating: The whole question in the case appears to be whether a certain Act of Parliament applies.

Mr. Besley: The whole question is the construction of three Acts of Parliament, upon which, therefore, no cases as authorities can be cited. It is entirely a question of construction, and I will, in two or three words, put you in possession of how the matter arose. I can do that without your having to look at the paper books which set out the contract and correspondence between the parties, and which are now really beside the point. The action was originally brought by The Gaslight and Coke Company to recover the sum of £2160 5s. 11d. from the vestry of the parish of St. George, Hanover Square, being the amount due for gas supplied to the public lamps of that parish for the half year from Jan. 1 to June 30, 1870. The vestry paid into court the sum of £1787 1s. 7d., leaving a balance of £373 4s. 4d. The trial took place on Feb. 13, 1871, before Justice Mellor, in the Bail Court, and ended in a verdict being entered by consent for the plaintiff, subject to a special case. The necessity for a special case arose in this way. The vestry contended that, in ascertaining the amount due, the arbitrator was bound to ascertain whether more than 20 grains of sulphur per 100 cubic feet was contained in the gas supplied to the vestry. They said there was a statutory obligation upon the company that the gas should not contain a larger amount of sulphur impurity than that, and that they were entitled to have the arbitrator's mind directed to that for the purpose of reducing their liability. With this introduction, I can now call attention to the Acts of Parliament. [Reports of the argument and decision in the Queen's Bench were handed up to their lordships.] The first Act to which I call attention is the public Act, 23 & 24 Vic.. c. 125, passed Aug. 28, 1860. It is called "An Act for better regulating the Supply of Gas to the Metropolis." By the schedule to that Act it is made applicable to some nine companies which were then supplying gas to different parts of the metropolis, and these, in consideration of Parliament assigning to them special districts, were brought under statutable regulations as to the illuminating power of their gas, tests for purity, and other matters which it is not necessary to refer to more in detail. The only point to which I would call attention is the 4th section, in which it is stated that "the words 'common gas' shall mean gas of an illuminating power hereinafter defined of not less than 12 candles. The words 'cannel gas' shall mean gas of an illuminating power hereinafter defined of not less than 20 candles." I need not call attention to any of the further sections until I come to section 25. There are undoubtedly sections in the interval with reference to the powers of inspectors, penalties, &c., and with reference to complaints being made to the Secretary of State, but the 25th section comes to the point about the purity. It is in these words: "The quality of the common gas supplied by any gas company shall be, with respect to its illuminating power at a distance, as near as may be, of 1000 yards from the works, such as to produce from an Argand burner, having 15 holes and a 7-inch chimney, consuming 5 cubic feet of gas an hour, a light equal in intensity to the light produced by not less than 12 sperm candles of six to the pound, each burning 120 grains an hour. And the quality of the cannel gas shall, with respect to its illuminating power at the distance aforesaid, be such as to produce from a bat's-wing or fishtail burner, consuming 5 feet of gas an hour, a light equal in intensity to 20 such sperm candles." Now come the important words: "And each such gas shall, with respect to its purity, be so far free from ammonia and sulphuretted hydrogen that it shall not discolour either turmeric paper or paper imbued with acetate or carbonate of lead, when those tests are exposed to a current of gas issuing for one minute under a pressure of 5-10ths of an inch of water, and shall not contain more than 20 grains of sulphur in any form in 100 cubic feet of gas; provided that any gas company, and the local authorities of the district supplied by such company, shall be at liberty to agree upon any other or different test by which to ascertain the purity of the gas, or to vary the amount of ammonia or sulphur in any form hereinbefore allowed, and thereupon the company shall be thenceforth liable to have the purity of their gas tested in the manner so prescribed." The 26th section I need not read in full. It imposes a penalty for impurity or deficiency of illuminating power of £50, and an additional penalty of £10 per day for every day after notice in writing from the local authority during which the offence continues; provided that the magistrate shall not inflict a fine if it shall be proved to his satisfaction that such defect of gas was occasioned by any unavoidable cause or accident. In the next section there is a provision for the appointment of an examiner of gas, and the following section refers to the examination of gas by him, and his report thereon. The 29th section provides that local authorities may join in the appointment; the 30th refers to complaints before a magistrate; the 31st, 32nd, and 33rd, to the hearing on report of examiner and order thereon; and the 34th directs that the companies shall afford facilities for examination under the Act. These sections, from 25 to 34 inclusive, prescribe the purity and illuminating power of the gas, and the mode of carrying out the intention of the Legislature with regard to these obligations. So matters continued from the year 1860 to 1868, in which latter year an Act was passed, entitled "An Act to amend the Metropolis Gas Act, 1860, and to make further provision for regulating the Supply of Gas to the City of London, and for other purposes connected therewith." Your lordships will see that, upon the face of it, this Act refers to the Act of 1860 only so far as the City of London is concerned; but you will presently find that "The Gaslight and Coke Company" were brought under the operations of this statute in their districts in other parts of the metropolis. By the 2nd section it is provided that "this Act shall be read as one with the Act of 1860." Of course, if the Act had stopped there, all the sections of the Act of the year 1860, from 25 to 34, to which I have called your attention, would be part of this Act. In fact, whenever the Act of 1860 is referred to, this Act of 1868 is to be read with it. Section 3 says, "Such parts of the Act of 1860 as are described in the first schedule to this Act, and any part of any special Act of any company inconsistent with this Act, so far only as they respectively relate to the companies and the City, are hereby repealed as and from the 30th day of September, 1868, and the Act of 1860 so amended shall, as to all the companies mentioned in the preamble of the said Act be read throughout as if the Board of Trade had been inserted therein instead of Her Majesty's Principal Secretary of State for the Home Department." By the schedule there referred to "sections 25 to 34, both inclusive," are repealed. Those are the very sections I have just read to you.

The Lord Chief Baron: You say by the Act of 1868 the sections in the Act of 1860 which you read to us are repealed?

Mr. Besley: Yes, my lord; the sections with reference to the testing, the illuminating power, the purity, the penalties for impurity and deficiency of illuminating power, the appointment of examiners of gas, and all the machinery connected therewith, were repealed by this Act.

Mr. Streeten: So far as relates to the City of London.

Mr. Besley: Yes, and the Act of 1860 so amended means the Act of 1860 with these repealed sections.

Baron Martin: That may be so; but I have not the slightest idea what you are aiming at. Is there an Act referring to St. George's, and what are its provisions?

Mr. Besley: They say that in 1868, when we were supplying St. George's, Hanover Square, we permitted more than 20 grains of sulphur to be in our gas, and the question is whether by the legislation of 1868, which brought the company supplying St. George's into the same position there as if it were in the City of London, you are to read the Act in the same way as though it was the City of London only you were dealing with, or whether they are to be subject to the repealed section as to the 20 grains of sulphur.

Justice Brett: Suppose there was too much sulphur, what do they say then?

Mr. Besley: They say they are not to pay. But your lordships need not trouble about that, Mr. Manisty having already decided it.

Justice Brett: But what is their contention?

Mr. Streeten: That the amount to be paid should be diminished.

Mr. Besley: Your lordships are asked to decide whether the Queen's Bench were right in saying that outside the City of London the repealed clauses of the Act of 1860 still apply.

Baron Martin: How can they contend that, when clause 3 says, "Such parts of the Act of 1860 as are described in the first schedule to this Act, so far only as they respectively relate to the companies and the City, are hereby repealed?"

Justice Brett: But there is another Act.

Baron Martin: So far as I read this section cursorily, the repeal is confined to the companies in the City.

Mr. Besley: I shall be able to show you in a moment that we are in the position of a City of London company. We are brought by another Act of Parliament within the exact terms referring to this company, and you will have to read this as applicable to us in the City of London and outside the City of London.

Justice Brett: This is an action brought for gas sold and delivered at a specified price. Assuming the gas is bad, does it follow that you can diminish the price, or does the Act of Parliament inflict a penalty?

Mr. Besley: They might sue the company in a cross action.

Mr. Streeten: The judgment was taken for the plaintiffs subject to a special case, and the Court of Queen's Bench have decided thereon that the Act of 1860 is not repealed, but is in full force in the defendant parish. The question is whether the Act is repealed.

Justice Brett: They have decided that; but after they had decided that they might have gone on to decide the other point.

Baron Cleasby: They decided that the case should go back to the arbitrator, and that the verdict should be entered in a particular way.

Mr. Streeten: That it should go back for him to find the facts.

The Lord Chief Baron: We are not called upon to decide whether the verdict is to stand for the plaintiffs or the defendants, but merely whether certain clauses of an Act are repealed.

Justice Keating: Justice Blackburn puts it in three lines. He decides that the Act of 1860 does apply to this company, and that this case must go back to the arbitrator to be dealt with as he thinks right.

Mr. Streeten: The judgment was much longer.

Baron Cleasby: The judgment was that if the arbitrator finds the gas was impure, he will say how much deduction shall be made, and if that deduction covers all the amount in dispute, then the verdict will be for the defendants; otherwise it will be for the plaintiffs for such sum as he thinks fit.

Mr. Streeten: Allow me to read the judgment, and you will see: "We are quite satisfied that the Act (of 1860) applies, and that you are subject to it."

Justice Brett: But is that an answer to the question? You seem to be getting a little advantage by giving an answer to a question which is not in point.

The LORD CHIEF BARON (to Mr. Besley): What do you say is the question for us to determine?

Mr. BESLEY: The question you have to determine is whether, looking at the three Acts of Parliament, finding that sections 25 to 34, all inclusive, in the Act of 1860, are expressly repealed by the City of London Gas Act of 1868 in the City——

Baron MARTIN: They are repealed.

The LORD CHIEF BARON: After your parenthesis, how do you finish?

Mr. BESLEY: Whether, being repealed with respect to the City, they are repealed with respect to the Chartered Company.

Justice BRETT: Which is not in the City?

Mr. BESLEY: Yes.

The LORD CHIEF BARON: Whether they are repealed with respect to the plaintiffs in this action?

Justice BRETT: You have shown that they are repealed in the City.

Mr. BESLEY: I had got as far as this, that in the City Gas Act of 1868 (31 & 32 Vic., c. 125) there is by the 3rd section an express repeal of the sections 25 to 34 inclusive of the Act of 1860. For the purpose of showing you that while repealing those sections, the Legislature has not left the public unprotected. I may point out that they have simply substituted another machinery by the Act of 1868—*i.e.*, that instead of having gas examiners they require gas referees to be appointed, which referees are to announce their decision as to the amount of sulphur which shall be permitted in the gas. By the provisions of the City of London Gas Act, 1868, you have a different machinery for testing the purity, and a different amount of impurity permitted. The amount of sulphur impurity by the Act of 1860 was to be under 20 grains; the amount of such impurity by the Act of 1868 is to be determined by officers appointed by the Government.

Justice KEATING: By what section is that?

Mr. BESLEY: The 29th section relates to the appointment of referees by the Board of Trade, and the 33rd section enacts that "the gas referees shall, subject to the provisions of this Act, from time to time prescribe and certify the mode to be adopted for testing and recording the illuminating power of gas supplied by the companies, and the number of times of testing."

The LORD CHIEF BARON: The 33rd section says the referees are to certify the mode. Now what next do you say bears on this question.

Mr. BESLEY: I say that the test for illuminating power and purity, instead of being as it was under the Act of 1860, is now placed in the hands of the gas referees, and they are to certify with regard to the maximum amount of impurity. If you will follow me you will find this in express words in the 36th section: "The gas referees shall from time to time ascertain with what degree of purity each company can reasonably be required to make and supply gas continuously without occasioning a nuisance to the neighbourhood in which the works are situate, and shall thereupon prescribe and certify the maximum amount of impurity in each form with which gas supplied by the company shall be allowed to be charged, and the time from which the allowance thereof shall be enforced as against each company, regard being had to the necessity for any alteration of works by a company consequent on any such certificate." I dare say your lordships are aware that the meaning of this is that you cannot have gas perfectly free from sulphur without adopting what is known as the lime process. That process causes an annoyance to the neighbourhood, and, therefore, it is left to the gas referees to fix the exact amount of sulphur which shall be allowed as a maximum.

The LORD CHIEF BARON: This enactment substitutes the gas referees for the express provision of the earlier Act.

Mr. BESLEY: I think I have pointed out sufficiently that there is here an express provision with regard to sulphur in lieu of the provisions of the Act of 1860. I do not think I need weary your lordships by calling your attention to a number of provisions in the Act of 1868; but I may say you will find in it that for all that is repealed of the Act of 1860 there is substituted other provisions which are more favourable to the public and less advantageous to the companies. For example, the illuminating power of the gas, instead of being 12 candles, is raised to 16 candles. That one instance will be sufficient to point out that the Act of 1868, while releasing the companies from the hard and fast line as to 20 grains of sulphur, and leaving the gas referees to decide the amount, imposes upon them burdens which they were not under before. Having said thus much, I have a further branch of my argument to make out, and that is all—viz., that the Chartered Company, supplying gas in St. George's, Hanover Square, outside the City of London, are, on the one hand, placed under the obligations of the Act of 1868, and are released from the provisions of the Act of 1860, which, as I have said, is to be read together with the Act of 1868. For this purpose I must refer your lordships to an Act which received the Royal Assent on the same day as the last—viz., the 13th day of July, 1868 (31 & 32 Vic., c. 106)—and I think I ought to call your attention at once to the 8th section.

Justice BRETT: Is this an Act for one company?

Mr. BESLEY: It is not for one company, because in the interval between 1860 and 1868 the Chartered Company had absorbed other companies, and it was contemplated that they would absorb others. This Act repeals the former Acts of the company, and annuls their charter.

Justice KEATING: Was not this Act promoted by the company?

Mr. BESLEY: Undoubtedly it was promoted by them, and it was passed on the same day as the City of London Gas Act. By the 109th section of the Act, you have it expressly shown that what I now contend for is correct, and that the company are placed in the same position outside the City as within it. It says: "If the bill, the short title of which, when passed, is intended to be 'The City of London Gas Act' (in this Act referred to as the City Gas Act), now pending, pass into a law in the present session, then the company and their undertaking shall be subject to the provisions of the City Gas Act, without as well as within the City of London and the liberties thereof, and such Act shall extend to the whole undertaking of the company; and for the purposes of the City Gas Act in relation to the undertaking of the company beyond the limits of the City of London and the liberties thereof, the Metropolitan Board of Works shall have all the same rights, powers, authorities, and obligations as are given to or imposed upon the mayor, aldermen, and commons of the City of London in the City Gas Act, as fully as if that board had been named in such Act instead of the said mayor, aldermen, and commons, so far as relates to the undertaking of the company beyond the limits of the City."

The LORD CHIEF BARON: I do not see the application of that to any question here.

Mr. BESLEY: I was about to say that it was upon the reading of the 110th clause that the decision of the Queen's Bench was founded, and which we contend was an erroneous reading. The 110th section says: "Nothing in this Act contained shall exempt the company or their gas-works from the provisions of the Metropolis Gas Act, 1860, or the Act for regulating Measures used in Sales of Gas as amended by subsequent Acts, or any other general Act already or hereafter passed in the present or any future session of Parliament for regulating gas companies in the metropolis, or for regulating the supply or sale of gas in the metropolis, and applicable to the company, or from any future revision and alteration by Parliament of the gas-rents and meter-rents by this Act authorized."

Baron MARTIN: Surely that section continues the provisions of the Act of 1860, as to the quality of the gas.

Mr. BESLEY: It continues all the sections of the Act of 1860 which are not repealed, and no more.

Baron MARTIN: "Nothing in this Act contained shall exempt the company or their gas-works from the provisions of the Metropolis Gas Act, 1860;" and one of the provisions of that Act is that the gas shall not contain more than a certain quantity of sulphur.

Mr. BESLEY: But your lordship should read this "as amended by subsequent Acts."

Justice BRETT: What is that amendment? That with regard to the City there shall be one set of powers, and in other parts of the metropolis another.

Baron MARTIN: All the provisions given to the City by their Act of 1868 are appliable to them; and then, for the purpose of protecting the public, the 110th section says, "Nothing in this Act contained shall exempt the company or their gas-works from the provisions of the Metropolis Gas Act, 1860."

Mr. BESLEY: We do not seek to be exempted from the whole of the provisions of the Act of 1860, but what we contend for is that we are exempt from the repealed sections of that Act.

Justice BRETT: But supposing this Act had not passed at all, how would you have stood?

Mr. BESLEY: In the City we should be bound by the City Gas Act of 1868 to give 16-candle gas, and in St. George's, under the gas examiners, we should be bound to give 12 candles, and we should have been much better off. But when the Legislature said "it shall be the same, whether in the City or outside," and imposed upon us a state of things in the City, it would be extremely hard to say that the repealed clauses which were not thought necessary in the City should apply to the company outside the City.

The LORD CHIEF BARON: Why not?

Mr. BESLEY: That there should be two systems in existence—that in one place we should be limited to 20 grains of sulphur, and that in another the amount of sulphur should be determined by a Government officer?

The LORD CHIEF BARON: Two systems for this vast metropolis! We have many systems in different parishes. You cannot possibly say that this provision as to the quality of the gas is not kept alive.

Mr. BESLEY: Surely the Act of Parliament is not to be read in this way, that the gas company must be under both systems, that every part of the metropolis must be under two systems—a gas examiner system and a gas referee system. That surely never was the intention of the Legislature, especially when you find the express words "as amended by subsequent Acts." If they had not put those words—— Just let me ask this one question: Supposing on the 13th of July, 1868, we were referring to the Act of 1860, if it was after the City Gas Act had passed it would mean the Act of 1868 and the Act of 1860, because they are to be read as one Act? That is all we contend for.

Justice BRETT: That is what I put to you. Take it to be so; take it that the City Act amends the other; how does it amend it? It does it by saying that with regard to the City there shall be one system, and with regard to the other parts of the metropolis another.

Baron MARTIN: "If there be anything extra in the City Gas Act of 1868—better for the public—than what was in the former Act, it shall apply, but nothing in the Act shall exempt you from the provisions of the Act of 1860;" and one of those provisions is that you shall supply gas not having above a certain amount of sulphur.

Mr. BESLEY: I should not say a word unless that section was expressly repealed.

Baron MARTIN: It is not repealed—only repealed as regards the City.

Mr. BESLEY: It says we are to be in the same position as if we were a City gas company. If your lordship will kindly read section 8 with section 110, how can it be contended for a moment that the Act of 1860 does not mean the Act as amended by the City Gas Act of 1868? "The company shall be and continue subject to the powers and provisions of the Metropolis Gas Act, 1860, and of any Act passed or hereafter to be passed for amending the same, and entitled to the powers and privileges of those Acts, as if this Act were not passed, so far as the same are not varied by this Act." Surely, my lords, reading this Act of Parliament by what you find in the express provision—viz., that by the 109th section the company are to be subject to the provisions of the City Act, without as well as within the City—I say, when you find that the City Gas Act has changed the system as to purity, surely the same cannot exist together. It cannot be held that they are under the repealed provisions of the Act of 1860, and yet are under the obligations of the Act of 1868 as to illuminating power—two systems at work. I venture to think this was never intended by the Legislature, and that when the 110th section is read it means that we are to be subject to the provisions of the Act of 1860 as amended by the Act of 1868; otherwise it would be raising the repealed clauses, and making them applicable to the companies outside the City, though not applicable with respect to the City. I am very properly reminded that there would be this further inconsistency, that the very same works at Beckton which supply gas to the City send it also to the West-end of London; yet you would have two systems at work and two sets of penalties, so that the company would be subject to a penalty in the City for what they would be under no penalty for in other parts of the metropolis.

Baron CLEASBY: The 109th section of the company's Act, 1868, is a hypothetical clause, if a certain thing takes place; but the 110th section does not appear to be founded upon any consideration of that sort. It might stand equally supposing the hypothesis in the 109th section did not come into effect.

Mr. BESLEY: If you read the 110th section it does contemplate the contingency which has occurred. I trust I have made myself intelligible to the court. I venture to submit that the way to read this Act of Parliament is that the provisions of the Act of 1860 are repealed with reference to the Gaslight and Coke Company though supplying gas outside the City of London.

The LORD CHIEF BARON (without calling on the other side) said: It really seems to me impossible to read the 8th and 110th sections of the earlier Act (I say the earlier Act because it is c. 106 and the latter is c. 125) of the year 1868, and not hold at once that all those provisions of the Act of 1860, though no longer in force because something else has been substituted for them in the City of London, are everywhere else in force and operation.

Baron MARTIN: I am quite satisfied there is nothing whatever to relieve this company from the obligation that it should not have in any form more than 20 grains of sulphur in every 100 cubic feet of gas.

The other learned judges concurring, judgment was given for the defendants.

COURT OF QUEEN'S BENCH.

TUESDAY, JAN. 28.

(*Sittings in Banco, before Justices* BLACKBURN, LUSH, *and* ARCHIBALD.)

EX PARTE THE LOCAL BOARD OF WORKSOP *v.* THE WORKSOP GAS COMPANY.

Mr. WILLS moved, on behalf of the Worksop Local Board, for a rule calling upon the Worksop Gas Company to show cause why a *mandamus* should not issue commanding them to put up lamp-posts and other necessary apparatus for lighting Sparken Hill Road, Worksop. He moved on the clause of a local Act passed in 1856, which said that the "gas company shall, at their own expense, fix, erect, set up, complete, maintain, and repair such other and additional lamp-posts and lamps, and other necessary apparatus, in such places or positions as shall be required from time to time by the local board for the purpose of lighting in a proper and effectual manner any such street, upon receiving such annual price or sum as shall be mutually agreed upon between the company and the local board." And there was a provision that, in the event of not agreeing, the matter should be referred to arbitration. The local board having determined to light Sparken Hill Road, required the company to put up six lamps, but the gas company said they could not do it, because the local board were requiring them to lay down a main of a mile in length where there would only be six lamps.

Justice BLACKBURN said the question was whether the words of the section required the company to lay down a main under such circumstances. He was of opinion that it did not.

The other members of the court agreeing, the rule was refused.

FEILDEN *v.* THE LOCAL BOARD OF OVER DARWEN.

In this case Sir William H. Feilden, Bart., had taken proceedings against the Over Darwen Local Board of Health for polluting the river Darwen with town sewage. The case came on for trial at the Liverpool Assizes, before Mr. Justice Lush, when the jury returned a verdict for the defendants. A rule was afterwards obtained calling upon them to show cause why a new trial should not be had on the ground of misdirection, and that the verdict was against evidence.

Mr. HOLKER, Q.C., and Mr. LITTLER now showed cause against the rule; Mr. MILWARD, Q.C., and Mr. CROMPTON supported it.

It appeared from the arguments that Sir W. Feilden was the owner of an ancient house known as Feniscowles Hall, about five or six miles below Over Darwen, on the banks of the Darwen; but in consequence of the river being in such a polluted state from the drainage of the town of Over Darwen, the house had become uninhabitable, and the property had, in consequence, become materially depreciated. The plaintiff had also taken proceedings against the authorities of Blackburn, which was on a tributary of the Darwen, for polluting the river. He obtained an injunction against the corporation, and they were directed to erect tanks for the reception of the sewage; but on their declining to do so the plaintiff recovered £1250 damages. The defendants case was that other towns contributed towards the pollution, and that the nuisance attributable to Over Darwen was of an inappreciable character.

The COURT, in giving judgment, said the rule must be discharged. There was not sufficient evidence to show that Over Darwen had caused the nuisance, and, as the Blackburn nuisance would in a short time be entirely discontinued, there would then be an opportunity of ascertaining whether really any nuisance was caused by Over Darwen, in which case another action could be brought against the authorities.

* WEDNESDAY, FEB. 5.

(*Sittings in Banco, before Justices* BLACKBURN, MELLOR, *and* QUAIN.)

WESTLEY *v.* THE SOUTH STAFFORDSHIRE WATER-WORKS COMPANY.

Mr. H. MATTHEWS, Q.C., and Mr. JELF were for the company; Mr. BOSANQUET and Mr. ANDERSON were for the plaintiff.

This case raised a question as to the liability for damage arising from leakage of water-pipes. The plaintiff is a householder at Dudley, and he sued the company for alleged damage done to his house by the leakage of the water under these circumstances:—The leakage was from the service-pipe, which was not a pipe of the company, and this was the great point on their side, while the chief point for the plaintiff was that the mischief was caused by the company's workmen. The plaintiff had built several houses in 1859, and while they were in course of construction he employed the water company to lay down a service-pipe for him, which they were not bound to do, but which they did. The service-pipe was made from the main-pipe of the company, which was on the other side of the road, across a small entry or passage which was in front of the houses, and so into a cistern on the premises. After this the water company transferred their property and rights to the present company, but there was no transfer of liabilities, and therefore it was insisted that even if the pipe was badly fixed, or if the fault had been originally in it, the present company were not liable. In 1867 the plaintiff found water getting into the foundation of the houses, and he sent for the head turncock of the company—their chief officer at Dudley—and desired him to find out the cause, and he was of opinion that it did not arise from the pipes, and did nothing to them. The plaintiff then employed other persons, who also failed to discover the cause. In 1872 the leakage of water into the cellars became greater, and caused great mischief to the foundations. The plaintiff then sent again for the head turncock, and insisted on his making a thorough examination, which was done. He then found that after the service-pipe had been laid down a wall had been built which divided the premises. and just under it there was a hole in the service-pipe which had been plugged with a piece of wood, and the wall was built over the hole. Upon this the plaintiff sued the company on two grounds—first, that of contract, and next that of tort. The first was founded on the employment of the company's head turncock to do the repair, and the other wes founded on supposed negligence in originally laying the pipe. The cause came on to be tried at the Worcestershire Assizes before Justice Quain, when, as is very usual amid the hurry of the assizes, it was arranged to take the facts and reserve the question of liability for the court without taking the verdict of the jury, and accordingly the case now came on to be argued, and occupied nearly all day. In the result, it will be seen, it was found, as very commonly happens in such cases, that after all it was a question of fact for the jury, and that it was very difficult for the court to know how to deal with a question of negligence. It should be stated that the company called no witnesses. The case was taken on the statement of the plaintiff, and neither side called the turncock. The chief question was whether there was a contract with the turncock on the part of the company, which was primarily a question of fact to be decided on the evidence of the plaintiff, Scott not being called.

After a long discussion, which turned entirely on the facts—for in one view of them the case was clear one way, and in another view of them clear the other way—

Justice QUAIN observed that it was a pity the case had not gone to the jury.

Justice BLACKBURN observed that, by the arrangement at the trial, the court were put in the place of the jury, and they had to consider the case on the whole of the evidence, and draw such inferences as a jury might have drawn.

Mr. MATTHEWS, on the part of the company, excused himself for not calling the turncock at the trial, on account of the hurry of the assizes. There was hardly, he said, time to finish the business at Worcester, and the learned judge appealed to him to shorten the case as much as he could. He also urged a certain letter which was meant to be relied upon by the company, but

Justice QUAIN said it had not been formally put in.

Justice BLACKBURN said it often happened that amid the hurry of the assizes, especially on the last day at any place, evidence meant to be offered was not put in.

The counsel for the company bitterly regretted the absence of the piece of evidence alluded to, declaring that it would have been conclusive in their favour.

After a long argument, which lasted until three in the afternoon, the court were divided in opinion.

Justice BLACKBURN said he very much regretted that the case had not been left to the jury, especially as the court were divided in opinion. The company were proprietors of the main-pipes, but not of the service-pipes, which the householders were obliged to obtain or supply. The company were under obligation to maintain the former, the householder the latter. Probably, however, in 1867, when the dispute arose, the parties did not know accurately the limits of their respective liabilities. Was there anything to alter or affect their liabilities? For the real original cause of the mischief the company were not liable. The plaintiff, however, supposed that the seat of the mischief was in the main-pipe, which was denied on their part. The fact was that the water leaked from the service-pipe, and not from the main. But the plaintiff was under the impression that the leak was in the main, and therefore he meant that the company should remedy the mischief, not that they were to act for him in discovering and remedying it. There was no evidence that the company ever intended to undertake any responsibility not cast upon them by law; and he saw no evidence that the plaintiff intended it, for his notion was that they were by law liable, the cause of the mischief being in the main. That not being the case, they would not be liable without a new undertaking, and of such new undertaking there was no evidence at all. Moreover, he doubted whether the head turncock, even though the manager of the company's pipes, had authority to make them liable by any new undertaking, but in point of fact there was no such undertaking on his part. That being so, his judgment was in favour of the company, but he was happy that it was not necessarily final, as there was a Court of Error and a House of Lords.

Justice MELLOR was of the same opinion. His judgment proceeded upon the ground that, as a matter of fact, there was no new undertaking by the turncock on the part of the company, whether or not he could have had any authority to give any, which he more than doubted. The truth was both parties fancied the mischief was in the main-pipe, whereas it was in the service-pipe, for which the company were not liable. He very much regretted that he should differ from his learned brother who presided at the trial.

Justice QUAIN said he also very much regretted that he could not concur with his brethren, but his opinion was in favour of the plaintiff. The head turncock, in fact, was the company's head officer at Dudley, and he was the party to apply to as to anything wrong in the pipes for which the company were responsible. No doubt the plaintiff assumed that the mischief was in the main, and under that impression he appealed to that officer. Neither party, in fact, knew the real cause of the mischief, and the first thing was to ascertain what it was, and then to remedy it. The two things were necessarily connected, and in undertaking to do one the officer undertook to do the other. He could not conceive what else the plaintiff could do than what he did—that is, to call on the head officer, and desire him to find out the cause of the mischief and to remedy it; and this the officer undertook to do. It was not necessary that he should do so in terms; but, in fact, he undertook it, and made an examination again and again, and came to a wrong conclusion about it. The plaintiff was willing to pay any reasonable expenses if the mischief was repaired, but the officer did not discover it. In this he failed in his duty, and he failed on the part of the company. He thought there was ample evidence for a jury that there had been an undertaking on the part of the company, and that there had been great negligence in not carrying it out. He could not, therefore, concur in the judgment of his brethren, and thought the case one of some importance. The supply of water, or gas, or anything of that kind, to houses was a matter of considerable importance; and what could persons do, who found anything wrong, but send to the company's chief officer to repair the mischief, and, in the first instance, to discover the cause? Until the cause was discovered, it could not be removed, and the first thing was to discover it. In his judgment the company, by their officer, undertook to discover and repair the mischief, and there was negligence or want of skill in not doing so. He did not doubt that a jury would have drawn that inference, and he thought the court ought to do so and to determine in favour of the plaintiff.

The majority of the judges being in favour of the company, judgment was given for them.

EX PARTE THE BIRMINGHAM GASLIGHT AND COKE COMPANY.

Mr. WEBSTER, Q.C., applied, on behalf of this company, for a rule *nisi* for a writ of *certiorari* to remove into this court an indictment, and certain proceedings in connexion therewith, that had been found against one Joseph Harrison. On July 12, 1871, a warrant was issued for the arrest of Harrison on a charge of embezzlement, and placed in the hands of the police, but they were unable to execute. A reward of £100, which was subsequently increased to £200, was offered for his apprehension, but hitherto the police had not been successful, and, from inquiries that had been made, there was no prospect of finding and arresting him. The grand jury, at the quarter sessions, returned a true bill against Harrison, and the clerk of the peace had signed a certificate of such finding. The object of the present application was to bring that indictment into this court in order to take proceedings of outlawry against him. The question was whether by the 15 & 16 Vic., cap. 30, sec. 4, the power of taking such proceedings existed in the quarter sessions, or whether it must be done in the Court of Queen's Bench. By Chitty and Archibald it would appear that taking proceedings in outlawry before quarter session had become obsolete, and that it was now done in this court.

The LORD CHIEF JUSTICE said that the 15 & 16 Vic., cap. 30, expressly stated that no indictment should be removed into this court, except for certain reasons, none of which applied in this case, and therefore the application must be refused.

Rule refused.

COURT OF EXCHEQUER.—FRIDAY, JAN. 31.

(*Sittings in Banco, before Barons* BRAMWELL, CLEASBY, *and* POLLOCK.)

MASEFIELD *v.* THE METROPOLITAN BOARD OF WORKS.

Mr. JOYCE applied on behalf of the contractor, who had been employed by the defendants to erect the new lamps on the Embankment, for an order to inspect certain reports furnished to the latter by their architect, with respect to the manner in which his work had been performed. By the agreement between the parties, the plaintiff was only to be entitled to payment on it being certified by the defendants architect that his work had been satisfactorily performed. A dispute having arisen, the plaintiff had begun an action against the defendants, and he had since obtained information that the latter had received certain reports from their architect on the subject of the lamps, and the plaintiff was now anxious to see those reports, in order to ascertain whether they amounted in effect to a certificate that the work had been satisfactorily performed.

Mr. PHILBRICK, for the defendants, declined to assent to the motion, on the ground that the reports in question were confidential, having been prepared by their officer for their guidance in the litigation which was going on.

Their LORDSHIPS refused the application on the ground that the reports were confidential.

BODMIN GAS CONSUMERS COMPANY.—At a meeting of the company, held in the Guildhall—Mr. S. Hicks, chairman—the report of the directors was unanimously adopted. The works and plant, it was stated, are in a very satisfactory state, and the loss of gas from waste has been considerably less than in any former year. The sum raised by the issue of 200 additional shares, authorized at the last meeting, has enabled them to pay off the loan of £750 at the East Cornwall Bank, and to enlarge the manager's house, including in it a room for an office. This arrangement was necessary; it is also found to be economical. In consequence of the unprecedentedly high price of coal, and the great difficulty of obtaining it, the directors have been compelled to raise the price of gas from 5*s.* 6d. to 6*s.* 6d. per 1000 feet, and it must have been higher but for their effecting some favourable purchases before the markets were at the highest point. It was resolved to enlarge the scrubber and erect an exhauster, from which they expect a saving of 10 per cent. in the carbonization of coal. It was also decided to utilize the ammoniacal liquor (at present a refuse material) by converting it into sulphate of ammonia, for which there is a great demand at high prices. A dividend of 6 per cent. was declared, and the balance, £50, was carried to the reserve-fund. Messrs. J. B. Collins and J. M. H. Cardell were re-elected directors; and Mr. J. R. Collins was elected auditor, in the room of Mr. Joseph Stephens, who retired; Mr. E. T. Crabb was re-elected. Votes of thanks to the chairman, directors, and Mr. Thomas, the manager, were proposed, and unanimously carried.

Miscellaneous News.

THE GASLIGHT AND COKE COMPANY.

An Extraordinary General Meeting of the Shareholders in this Company was held, pursuant to the Standing Orders of both Houses of Parliament, at the Offices, in Horseferry Road, on Friday, Jan. 31, to consider the clauses and provisions of a bill to be introduced in the coming session "to authorize The Gaslight and Coke Company to purchase or lease and work coal mines, and to confer additional powers on The Gaslight and Coke Company, and to amend 'The Gaslight and Coke Company's Act, 1868,' and the several Acts altering and amending the same, and for other purposes." The GOVERNOR (S. A. Beck, Esq.) presided.

The SECRETARY (Mr. Phillips) having read the notice convening the meeting,

The GOVERNOR said: Gentlemen, before the bill is read over to you, I think it right to state that the directors, on reconsideration, have determined to withdraw from that bill the powers they originally proposed to seek to enable the company to purchase or lease and work coal mines. A great many questions might have arisen on the subject, and we might have had opposition in Parliament; and, therefore, he thought it right to expunge those clauses from the bill.

The SECRETARY then proceeded to read the clauses of the bill as altered.

The GOVERNOR: It is unnecessary for me to make any observations upon the bill. You have heard its provisions read, and see that its object is of a very simple character. If any gentleman has a question to ask, or an observation to make on the matter, I shall be happy to hear him.

Mr. DOANE: Is there any maximum sum named in the bill as the amount which may be expended in the purchase of colliers?

The SECRETARY: Clause 10 provides that the company may apply, for the purpose of the Act, any money authorized by other Acts to be raised, and not required for the other purposes of the undertaking. But any money, before being so applied, must be approved of in the first instance by a meeting of shareholders.

Mr. BIDGOOD: I think I echo the sentiments of the proprietors around me when I say that we heard with great satisfaction indeed that you intended to abandon the clauses which would give you power to purchase coal mines and work them in the interests of the company. But we should have heard with very much more satisfaction that it was also not your intention to ask for power to purchase collier ships, because I for one have lived long enough to know that you can often accomplish in two halves what you cannot accomplish as a whole; and what finer argument will there be next year for the purchase of coal mines than for you to show Parliament that you already have collier ships, provided at the expense of the company, which can be more profitably and economically employed in our interests if only you had mines of your own from which to load them? I am quite sure that this is a false step. It is trying, in the interest of economy, to do everything for yourselves, and I am sure it will fail, as such attempts always have. It never has answered in the history of any undertaking with which I have been connected. People often attempt to grasp too much, instead of adopting and putting in practice the maxim, "Live and let live," and in the end it has proved a miserable failure. I speak strongly as a proprietor. I take stock on the 31st of December every year, and I am bound to say it is not very consolatory to find that the shares one holds in this company are just £200 or £300 less in value this year than they were last. This is the consequence, the unfortunate consequence, of our having been persuaded—a very mild term—as Western shareholders, to join ourselves to your great Chartered Company. The result of that step has been that our Western shares are worth just so much less in the market than they were before it was taken; and to show that that is the consequence of our having joined you, I may say that our shares fell the moment the junction took place, and they have never risen since. I fear they will take the tendency of the property you intend to put into coal ships, and go lower and lower still. Of course, it may not be so; we live in hope that they may recover. But still I say, in reference to the power you propose to take, the experience which the records of commerce teach is, this is not a wise project. Let the shipowners live by carrying coals. You will surely be able, with such a large shipowning interest as there is in London, to secure that amount of competition which will result in your coals being carried cheaply. And do you not think, if you set up your own steamships, that, when a moment of need comes, you will not have the whole shipping interest of London against you? They will say: "This company tried to outwit us, and now they are in straits we will leave them to their resources;" and we shall be left to flounder in the difficulties which we have ourselves created. I do sincerely trust, therefore, that the proposition to have collier ships will follow the fate of the proposition to sink our money in coal mines, and that the directors will also abandon this portion of their scheme. The members of the House of Commons are to a very large extent mercantile men; they understand the true principles of commerce; they know well enough that you cannot do everything yourselves, and that your work, like every other, can be better done by a division of labour. I do not believe you will get the power you seek. I think you will fail in committee of the House of Commons; and, if you do get it, all I say is, so much the worse for us. I shall therefore move as an amendment—"That it is not expedient for the company to adopt the system of providing their own collier ships."

A SHAREHOLDER: For the sake of challenging discussion, I will second the amendmend.

Mr. CRAKE: As a Western Company shareholder, and deputy-chairman of that company, I beg to express my satisfaction in hearing that the clauses in the bill with regard to coal mines have been withdrawn. But I do not quite sympathize with the observations just made in reference to the purchase of steam-ships, especially as I understand from the governor that the money to be so employed is money authorized to be raised by existing Acts of Parliament, and that it will not be expended without taking the votes of the shareholders. We may safely, therefore, leave the matter in the hands of the directors. I know that on more than one occasion it was a question at our board whether it would not be to the advantage of the shareholders to purchase an iron steamboat, and run it ourselves up to the North. The conclusion to which we came certainly was that we had better not; but I think, after the explanations we have heard to-day, we may, as I say, safely leave the matter in the hands of our directors.

A SHAREHOLDER: The proposal that we should become collier owners has taken me by surprise. The attempt to carry out the proposal appears to me to be inexpedient, and I think we had better not incur the expense of going to Parliament about it.

Mr. YOOL: Probably, if we took the average of years, it might be quite as cheap to hire steamers as to purchase them; but, seeing we have at Beckton a pier which requires a special class of ships to run alongside of it to deliver coal with the greatest facility, it may be expedient that we should have power to build or to buy collier ships to suit our purpose, because there might sometimes be a difficulty in obtaining the class we want. I do not think we shall hear anything more of purchasing coal mines, for I feel confident that coal mines in the north of England cannot be properly and economically managed by a board sitting in London. No doubt colliery owners have lately been making large profits, but this would not apply to a long average of years, and to buy coal mines at present prices would be extremely injudicious.

A SHAREHOLDER: I apprehend that, whatever the opinion of this meeting, the board have proxies which will enable them to carry their point.

The GOVERNOR: We do not mean to use proxies. I have had several sent to me unasked, but I shall not bring them forward. This is a question entirely for the meeting.

A SHAREHOLDER: May I ask you to give us the benefit of the opinion of the board as to the advantage or disadvantage of our entering into competition with an admirably organized trade like that of the shipowners? What are the principal advantages you think would be derived from obtaining these powers and carrying them out? I think it is a safeguard to the shareholders that you do not propose to raise fresh capital to buy ships, and that you will come before us on another occasion whenever you put these powers in operation; but it appears to me that the very large coal carrying you require for the Beckton works may make it expedient to a certain extent that you should be independent of contracts. Still, it would be well for the meeting to know the special advantages the board expect to derive from the acquisition of this power.

Another SHAREHOLDER: What number of ships would be required? Everything depends upon the way in which this thing is carried out. If we are to have a tremendous large fleet, it will be a serious matter; but if it is only necessary for us to have a few, it will be probably be advantageous to the company.

The GOVERNOR: The number would be eight or ten. We could use that number, but it does not follow that we should have them.

Another SHAREHOLDER: We all know there are times when shipowning is very profitable, but then again there are long periods of time when it brings enormous losses. Have you ascertained what your ships will cost? You will have not only the first cost, but there will be the insurance, and the wear and tear, and, after all, you will be entirely at the mercy of those who conduct the vessels. No doubt you have gone into all this, and will be able to inform us whether you think it will be in the end more profitable to us than chartering ships for the use of the company.

Another SHAREHOLDER: I think we may fairly trust to the discretion of the directors. We have had long experience of the wisdom of the board, which has been specially manifested during recent troubles, that we need not fear leaving it in their hands.

The GOVERNOR: One or two of the proprietors have asked me to state upon what grounds we think it desirable to apply for powers to buy steam-ships. We do it, in the first place, because we think it would be advantageous to the company, and we believe the advantage would arise in this way, that we could always give those ships a freight. The freight would be at all times certain, and there would never be a question of demurrage. We think we could buy steam vessels as cheaply and well as other persons, and that there would be no great difficulty in managing them as far as the captains and crews are concerned. I know one gentleman who is interested in this company, who also has an interest in some steamers, and he informs me they have paid 22 per cent. for eight years. You recollect we are only asking you for leave to seek for powers, and we must come to you whenever we think it desirable to exercise those powers, and should have then to give you our reasons for believing it would be advantageous. We think, therefore, if the shareholders have confidence in us, they may give us the authority, and rely upon it that, as large shareholders ourselves, we shall not abuse it. For myself, I can only say that I have no interest in any ship company, and never held a share in one in my life, and am only actuated, in recommending this matter, from a conviction that it will be beneficial to this concern. I may mention that we have constantly questions of demurrage arising; the other day we had £200 or £300 to pay on that account. We know exactly what we want, and should exercise the powers with caution. No one, of course, would suppose that at the present enormous price of iron we should think of buying steamers.

Mr. YOOL: I can only say that many very clever men are building steamers now, notwithstanding the price of iron.

The GOVERNOR: As I said, we only ask for powers to go to Parliament, and we shall not exercise them unless we think it advantageous for the company. We do not make a great point of the matter; we tell you our opinion about it, and it will be for you to decide.

The amendment was then put and negatived, and the original motion was carried by a very large majority, authorizing the directors to proceed with the bill as altered.

In accordance with the notice given, a formal resolution was proposed by the governor, and agreed to, authorizing the directors to dispose of such further portion of the company's property as is not now required for the purposes of the undertaking. The property consists of land at Westminster and on the banks of the Regent's Canal, City Road, and the offices of the late Western Gas Company, in Argyll Street.

On the motion of Mr. YOOL, a vote of thanks was given to the directors, and the proceedings terminated.

MAJOR BOLTON'S REPORT ON THE WATER SUPPLIED TO THE METROPOLIS DURING THE MONTH OF JANUARY.

During the month of January the intake of all the metropolitan companies (except the Kent) has been much affected by the continuous heavy rains and floods.

The state of the river at Hampton, Molesey, and Sunbury, where the intakes of the West Middlesex, Grand Junction, Southwark and Vauxhall, Lambeth, and East London Companies are situated, was much discoloured and turbid from the 1st to the 11th of January; it then began to fine down and slightly improve. On the 19th the river again became very turbid, but on the 23rd the water got clearer, and continued to improve until the 30th inst., when it was good but discoloured. The highest state of the river at Hampton during the month was 5 feet 7 inches, and the lowest 2 feet 1 inch above summer level.

At Ditton (where the Chelsea Company now alone draws its supply) the state of the river was very bad during the whole of the month. The highest state of the water at this place was 6 feet 2 inches, and the lowest 3 feet 2 inches above summer level. The highest temperature of the water at Ditton during the month was 47°, and the lowest 35°, while the highest temperature of the air at the same place was 55°, and the lowest 26°. These observations were made daily at 9 a.m. The rainfall at Ditton during January was 2·71 inches.

The construction at the earliest possible period of sufficient subsiding and impounding reservoirs by the Chelsea, Lambeth, Grand Junction, and Southwark and Vauxhall Companies should receive immediate attention, and the conversion by the Lambeth Company of the reservoirs at Ditton into filter-beds (already authorized) should be facilitated, as this company is evidently short of efficient means of filtration, especially during such floods as have recently prevailed.

The Chelsea Company are making application to Parliament in the ensuing session for powers to remove the intake from the present site to a point higher up the river (above Molesey Lock), whereby the objectionable outflow of the rivers Mole and Rye will be avoided; and also to construct suitable reservoirs for subsidence and storeage.

SAN PAULO GAS COMPANY.—A meeting of this company was held on the 3rd inst.—Mr. F. Delmar in the chair. It was reported that the whole of the calls had been fully paid up, and reference was made to a proposal submitted by the contractors, Messrs. William Blews and Sons, to lease the works for five years, paying the company 7½ per cent. on the capital outlay and upon any debenture stock necessary to issue to the extent to £10,000. The matter was referred to the adjourned meeting to be held upon receipt of accounts to Dec. 31, 1872, from San Paulo.

THE PATENT GAS COMPANY, LIMITED.

A General Meeting of the Shareholders in this Company was held at the City Terminus Hotel, Cannon Street, London, on Wednesday, Feb. 5—JOHN OGLE, Esq., in the chair.

The SECRETARY (Mr. W. H. Beck) having read the notice convening the meeting, the following report and statement of account were submitted:—

The directors have the pleasure to lay before the shareholders the accounts of the company, from its incorporation on the 28th of February, 1872, to the 31st of December, 1872.

The directors have to report that Col. George Davison, Dr. Eveleigh, and Mr. John Tanner have resigned their seats at the board.

The directors very much regret the excessive delay that occurred in the completion of Mr. Keates and Dr. Odling's report upon the experiments at Barnet and Peckham, and they beg to assure the shareholders that the delay arose from circumstances over which the directors had no control whatever.

Balance-Sheet at December 31, 1872.

Dr.				*Cr.*		
To Share capital—				By Payment to old company, as per contract dated the 22nd of February, 1872, of 45,000 shares, £5 each, with £4 credited thereon		£180,000 0 0
1st issue of 45,000 shares, £5 each, with £4 per share credited thereon		£180,000 0 0		Overdue instalments on supplementary issue of 5000 shares, as per contra		555 0 0
2nd issue of 5000 supplementary shares—				Patents account—English and foreign	£346 4 1	
Amount paid on 1st instalment of £1 per share, due Feb. 29, 1872	£4,999 0 0			Patents purchased	2,875 0 0	
Amount paid on 2nd instalment of £1 per share, due May 29, 1872	4,981 0 0					3,221 4 1
Amount paid on 3rd instalment of £1 per share, due Aug. 29, 1872	4,465 0 0			Chemical, engineering, and other professional services		1,691 19 4
	£14,445 0 0			Special expenses in reception of visitors, deputations, &c.		257 18 10
Amount unpaid on 1st instalment	£1 0 0			Investment in Petersburg and Viborg Gas Company shares		2,500 0 0
Amount unpaid on 2nd instalment	19 0 0			Engineer's department, including salaries of assistants, draughtsmen, &c.		417 5 4
Amount unpaid on 3rd instalment	535 0 0			Office furniture and fixtures		143 13 6
	555 0 0			Office rent		180 11 8
		15,000 0 0		Office expenses, stationery, printing, advertising, &c.		420 17 8
Amount paid on 4th instalment of £1 per share, due Feb. 28, 1873, being payments in advance		3,740 0 0		Office salaries		528 0 6
3rd issue of 833 shares of £5 each, with £4 per share credited thereon		3,332 0 0		Law charges		192 3 8
		202,072 0 0		Auditors fees		21 0 0
Registration, &c., fees		390 5 6		Travelling expenses—English and foreign		222 15 9
Interest account		357 15 5		Excess payments account—		
Sale of patents account—first instalment on sale of American letters patent		50,000 0 0		Returned on account of old company	£30 0 0	
Amounts owing to sundry creditors at December 31, 1872		1,071 19 9		Received since reconstitution	3 15 0	
Cash and sundry assets brought forward from old company		2,586 9 5		Works at Peckham		701 8 4
				Experimental department, Peckham		166 15 6
				Rent and taxes, Peckham		269 17 7
				Chemical apparatus		26 1 6
				Works at East Barnet—construction		1,795 19 8
				Ditto ditto—extension		1,147 0 0
				Experimental department, Barnet		85 2 5
				Chemical apparatus, ditto		220 7 2
				Furniture, testing-house, and works, East Barnet		160 14 0
				Rent of testing-house, Barnet		47 9 4
				Works in Paris		1,000 15 8
				Ditto in Ostend		2 12 4
				Loss on gas manufactured at Barnet during the year's working		1,470 13 5
				Stores, materials, and products on hand, Dec. 31, 1872		438 9 3
				Dividends paid	£44,288 19 5	
				Ditto remaining unpaid	62 2 9	
						44,351 2 2
				Amounts owing by several gas companies and sundry debtors		2,272 6 10
						£244,675 10 6
				Cash balances at bank and on deposit	£11,772 4 9	
				Petty cash balances	30 14 10	
						11,802 19 7
		£256,478 10 1				£256,478 10 1

The report having now been some days in the hands of the shareholders, they will have had ample opportunity of considering its details, and the directors consider that there is good reason for congratulation as to its nature. The consulting engineer, as will have been seen from his remarks annexed to the report, is fully satisfied that his views are confirmed by it.

Since the last general meeting, the South Metropolitan and Crystal Palace District Gas Companies have agreed to give the patent process a trial, and works are in course of erection and nearly completed at the stations of both these companies.

A contract has been concluded with the Petersburg and Viborg Gas Company, for the use by them, on royalty, of the patent process in their works about to be erected in St. Petersburg. The directors are also engaged in important negotiations for the adoption of the patent process in other towns at home and abroad, which they hope will shortly be completed.

The directors are happy to report that they have made arrangements with the Barnet Gas Company for an increased price for the supply of gas to the new districts incorporated with that company, formerly supplied by two other companies.

The CHAIRMAN: Gentlemen, it is now my duty, as the representative of the directors, to propose the following resolution:—"That the report and statement of accounts be received and adopted." But before I proceed formally to put this resolution, I will give you a few words of explanation as to what has been done since our last meeting, and I will do so as briefly as possible, as there are other gentlemen here who can deal with the matter more in detail, and more technically, from their special knowledge, than I can, and upon whose statements you will put more value than upon anything which I, who am simply an amateur, can say. The first point to which I address myself is the statement in the report that Col. G. Davison, Dr. Eveleigh, and Mr. Tanner have resigned their seats at the board. Mr. Tanner had resigned at our last meeting, but as a matter of form we put it forward here; and Col. Davison resigned shortly afterwards, and also Dr. Eveleigh. I have little to say upon this matter, because of course every director has a right to resign when he thinks proper. With regard to Dr. Eveleigh—and he is the only person to whom I have any interest in referring, as being the patentee—you might wish to know why he left the board. His absolute reason I cannot tell, but the position of Dr. Eveleigh and the board came to be this: that either he must be made the managing director or he would resign, and, acting to the best of our judgment, we preferred the alternative of his leaving; and he did leave the board. The progress of our business since quite confirms our view that we acted properly in accepting his resignation in preference to giving him a more important position in the company. The next matter referred to in the report has been a very serious matter to the company, and one for which the directors have been very much blamed—we say most unjustly blamed; and those who have read the report of Mr. Keates and Dr. Odling will agree that, whatever opinion might have been formed before the report was published, it has been made clear that there was no fault on our part that it was not sooner placed in the hands of the shareholders. We, as large shareholders ourselves, and as the representatives and trustees of a very important property, felt as much as any shareholders could do the necessity for getting that report out. I had numerous letters—too numerous, indeed—from the shareholders, pressing upon me the absolute necessity of getting that report out as soon as possible, and pointing out that if the delay originated with one of the gentlemen we had referred the matter to, his services should be dispensed with, and the report of the other alone taken. I confess, perhaps from temper and out of annoyance at the great delay, I agreed with those shareholders who expressed these views, and I pressed them upon the board myself; but I am now happy to say those views were not coincided in by the rest of the directors. Both the engineer and the other directors were of opinion that the report of Dr. Odling was of such great importance, and he and Mr. Keats being undeniably the greatest authorities in the gas world, we ought to have their joint report, believing that that report would silence any objection which might be raised to our system, provided such report was satisfactory. Eventually the report was received by the directors. And that report, as you see, together with our engineer's report attached to it, confirms most conclusively in all its most important features the validity and goodness of our patent. I have heard various opinions expressed by non-professional shareholders, that in reading Messrs. Keates and Odling's report through it was almost impossible to judge whether it was satisfactory or not satisfactory; and I quite feel with those shareholders. It is impossible for those who do not understand the subject to read that report through without coming to the same conclusion. I have read it over dozens of times, and have always felt in great doubt as to what was the nature of it: but our engineer is distinctly of opinion that it is satisfactory, and that the further reading of it, since he published his report, only confirms him in that view. It is also confirmed by other authorities, upon whose opinion we place reliance. I have had the pleasure to discuss the matter with the engineer of one of the leading gas companies in the metropolis, who told me that he had discussed the matter with his board, and had reported upon it very favourably. The gist of the matter is this: we consider that we have the only true principle for the manufacture of gas; the details of that principle are being worked out; and we have got to a certain point now—a point upon which I will give you some further information in a few minutes. But, as I say, the principle is there, and, like all great inventions, the principle has to be worked out, and it has to be discovered how, in practice, it can be best applied to the object sought. It is, perhaps, old news to tell you that the South Metropolitan and Crystal Palace District Gas Companies have resolved to give the process a trial, and they will try it on as large a scale as possible, considering it is yet in its infancy. We feel sure, as also does our consulting engineer, that the result will be satisfactory. The question whether it will be used by them as a whole or only partially is a question for the future. The gas companies have merely to look at their Acts of Parliament and their profit and loss accounts, and the question then is how far it will suit them to take it as a whole, and give gas of an increased illuminating power, asking their customers to give an increased price, or whether they shall use it partially, and not increase the price. Of course, you cannot expect a company who work for profit to be philanthropic enough to give an increased quality of gas beyond what they are bound to give unless the public will give an increased price for it. If they will not give an increased price at present, we are satisfied that it will come to that eventually, and that they will have the best and purest gas even if it costs them more money. We ought to have been at work at the South Metropolitan and Crystal Palace Companies works before now, but we have had the same difficulty which other persons have experienced. The difficulty of getting iron, the strikes, the scarcity of iron and coal, &c., have all delayed us considerably. By our contracts with those companies we ought to have had our works in operation some months ago, but, as a matter of fact, they are not yet complete, though nearly so. We have done the best we could to advance your interest to the utmost. The next paragraph in the report refers to the contract with the Petersburg and Viborg Gas Company, but that is not new to you. The matter has been proceeded with, and the engineer of that company tells me they are applying for two additional districts which they hope to get, and he feels no doubt that in Russia, where they like the best of everything, if they find one company giving a better gas, of a higher illuminating power, they will compel all the other companies to give the same. We estimate that at first our profits there will be only about £1000 a year, but that before long they will be £3000, and that it will lead to other companies adopting our process, which is the great object we have in view. The great object of a patent business is to get it introduced somewhere, and if it is the good thing we believe this to be it will extend itself. The next matter of which I have to speak has reference to the Barnet Gas Company. So satisfied were the people of Barnet and the neighbourhood with the gas we were producing for the Old Barnet Gas Company that, when the proposal was on foot for amalgamating the East Barnet Gas Company with two other companies, they insisted in their bill that the system of the Patent Gas Company should be adopted for the whole district. We have, therefore, succeeded in getting a contract at an improved price for the new district—an improvement of 50 per cent. That is all I have to say on the question of the report. Then we come to the question of the accounts, and there appears to me to be only one item to which objection may be taken. We have heard it said that we ought, in our report, to have given some reason why there was a loss at Barnet. We did not enter into excuses, because we considered that no excuse was necessary. It is perfectly true that when we entered into the contract with the East Barnet Company, we did not expect the loss would be so great as it has been. The details I am not going into; if necessary, they can be gone into by those who understand the matter much better than I do; but I may say the main portion of the loss is the loss arising out of the increased cost of coal. When we entered into the contract, the price of coal was 14s. per ton at Barnet. It is now 30s., and I, as one considerably interested in the coal business,

believe it will be still higher. At any rate, we entered into the contract on the basis of 14s., and the difference between 14s. and 30s.—as coal is the principal expenditure in gas manufacture—has made the chief portion of our loss. But I can only say that, if called upon again to make the contract, with the knowledge that the price of coal is increasing, and, in all human probability, will increase, I should be prepared to enter into it at the low price we did for the sake of the object we had to attain. You must bear in mind that the manufacture of gas is different to most others. It is a monopoly in the hands of companies who obtain Acts of Parliament to deal with certain districts, and no one else has liberty to deal with those districts to supply the public. They can make gas for their own purposes. But what was wanted by our company was an opportunity to show that we could supply gas in the same manner that it is supplied by these companies daily and hourly, and that our gas would travel to a distance and still remain of the same lighting power which we claimed for it. This opportunity we could not obtain without making a contract with a company like the East Barnet Company. We tried numbers, but this was the only one we could get; and I repeat that if it were necessary to make the contract again, with the loss we have sustained staring us in the face as at present, we should be prepared in your interests to accept it. In fact, it was the only way to prove the system at all. The next question is this: at present we are only five directors; our minimum should be six. We have not increased the number, because we have not yet been able to obtain that assistance at the board we could wish. What we want is another Mr. Stephenson, if we could obtain one. A board is not made more powerful or useful by numbers; in fact, it is quite the contrary. What we want is technical skill and ability, and we are anxiously looking out for some such addition to our board. If the shareholders can help us in the matter we shall be very happy. We only ask them not to press upon us a gentleman who has no technical knowledge. We have had many candidates who desire to augment our number, but at present we have not seen the right man. We were in earnest treaty some time ago with a gentleman of high reputation in gas matters to take my place, but he felt he had so much work before him that he was obliged to withdraw. We were somewhat afraid to press any one in the gas world while the cloud was over us with reference to the unfortunate report of Messrs. Keates and Odling; we did not like to ask any one to come in; but now that we have a satisfactory report, and one which confirms in all its leading points the goodness of our system, we have no hesitation in asking any one to join us, whoever he may be. To those shareholders who have written me letters I must apologize for not answering them. I have answered a good many, but if I had answered them all I should have wanted two secretaries, for I have had as many as 30 or 40 letters a day, making every possible and impossible suggestion. Any communications of value were discussed by the board, and conclusions formed thereon to the best of their ability. I have been asked why we have not got a quotation on the Stock Exchange. The answer is that we have done our best to get one; but in our incubation we were not established as a public company. A few of us took up the matter believing it to be good, but we did not like to ask the public to take a thing up about which we knew so little. We risked our money, and waited till gradually one and another came in; therefore the first condition required by the Stock Exchange—that we should advertise, and get the public to take up shares—was not complied with, for that is a fatal objection with the Stock Exchange. But practically we have a quotation, though we are not in the list, and any person desirous to find out the value of his property can obtain it. I think there is no other question to which I need advert but that of the directors remuneration. That is purely a shareholders question; it is for you to consider what remuneration the directors are entitled to have for looking after your interests. Ill-paid services are not worth much, and gentlemen cannot be expected to attend to the interests of a body of shareholders without remuneration. What it should be is a matter for your consideration. I need not trouble you further than to state that all technical matters will be dealt with by gentlemen better qualified than I am. I shall therefore conclude by moving that the report be received, approved, and adopted.

Mr. H. P. STEPHENSON: I beg to second the motion for the adoption of the report. Many of the shareholders are aware that I am largely interested in gas companies, and of course, therefore, in any improvement in gas manufacture, that would be to the advantage of those companies with which I am connected. I must admit that, when I first heard of the system of the Patent Gas Company, I was, like a great number of conservative engineers (who are desirous to go on in the old humdrum way without trouble to themselves), somewhat—perhaps I ought to say greatly—prejudiced against it. But upon seeing the working at Barnet, I became, as the chairman told you at the previous meeting, satisfied that the Patent Gas Company had established a *primâ facie* case, and that the system was well worthy of the attention of gas engineers and gas companies. It appeared to me that, though it had been previously known that by distilling coal at a low temperature you obtained gas of a higher illuminating power than if you distilled it at a greater temperature, yet that most gas engineers had not given such attention to the point as it deserved. If it had been stated some years ago that 8000, 9000, or 10,000 cubic feet of gas of 20-candle power could be obtained from a ton of common coal, that statement would have been received with considerable doubt, the impression, the strong impression, then being that gas of a high illuminating power could only be obtained by the use of cannel coal. Now, I should like to show you shortly that this was so, and in order to do so I refer to a very eminent authority—Mr. Hawksley—who is known all over the world as a gas engineer, than whom, in fact, there can be no higher authority. Mr. Hawksley, speaking at the fourth annual meeting of the British Association of Gas Managers, held at Nottingham, respecting the pressure put upon gas companies through the Legislature to raise the quality of gas, said: "But the object of the promoters of the present agitation is to render it compulsory upon all gas companies in London to supply gas of a minimum illuminating power of 18 candles, the measure of that illuminating power being taken at a distance of 1000 yards from the gas-works. Now, we all know that no ordinary coal will give an illuminating power of that quality." In the following year the late Mr. Barlow—a most eminent man, whose death was a great loss to the gas world—followed almost in the same words: "The pressure which the Legislature has recently put on gas companies to raise the standard of illuminating power above that obtainable from common coal has compelled most of them to use a certain proportion of cannel coal at a heavy cost and with a diminution in the value of the coke. The advance in the price of cannel, consequent on the increased consumption, has stimulated inquiry to find a substitute for it." There is one other quotation I will make on this point; it is found in the evidence given before a committee of the House of Commons in 1867 on the supply of gas to the metropolis, and occurs in the evidence of Mr. Rofe, the late engineer to the Preston Gas Company. Speaking of Lancashire cannel, the question was put to him, "What is the greatest number of candles that you have known produced from the Lancashire cannel?" His reply was, "From the best picked Lancashire cannel I have seen 24 candles made in iron retorts." Therefore, gentlemen, I think my position is a pretty good one, that though engineers believed there would be an increase of illuminating power, yet they never anticipated that a high illuminating power could be maintained together with a large yield of gas by the use of common coal. In consequence, I accepted with satisfaction the proposition made to me in June last that I should take a seat at this board in order the more thoroughly to examine the system, the importance of which to gas companies, if established, would be very great, being, in fact, as I put it to you, the substitution of a new material, as it were, to produce gas of comparative abundance, as we may call common coal—although, perhaps, at the present moment you may scarcely assent to the statement—for a material of great scarcity and high price, such as cannel coal. I put it in the form of a discovery of a new material—*i.e.*, it had not been used for the purpose of making gas of high illuminating power before, and therefore to that extent it was the discovery of a new material. Now, gentlemen, I have been connected with this company for about five or six months, and what I have seen of the working of this system since I joined the board has more fully confirmed me in the opinion that the matter is worthy of the most serious attention. Acting on that opinion, I have advised the directors of the Crystal Palace District Gas Company, with which I have been connected for the last 18 years, to give the system a trial, and in consequence of my advice we have, as you are informed in the report, entered into a contract with the company to erect 14 retorts and two stills, which are now nearly completed. My views have been also further confirmed by the reports of Mr. Keates and Dr. Odling, with whom the directors had made arrangements for the investigation of the system before I joined the board. In the report made by those gentlemen, I think there can be no doubt that the question of the production of gas of a high illuminating power and permanence and purity—entire freedom from sulphur compounds—is thoroughly established. I think there cannot be the slightest doubt in the mind of any one whatever that those three points are thoroughly established. But I call your attention also in that report to the extraordinary results obtained at Peckham, as shown on page 30. From that table it appears that 10,500 cubic feet of gas of 24·9 candles illuminating power was obtained from one ton of Silkstone coal and 25 gallons of oil, which is equivalent to 13,000 cubic feet of 20-candle gas from one ton of Silkstone coal with its proper proportion of oil. But, gentlemen, bear in mind this was an experimental result; it is a result to which we shall aim in working, but a result to which in working we shall probably never attain. And, therefore, the directors, before I joined the board, and also since I joined the board, have turned and are turning their attention to the working at Barnet, in order to attain a commercial working, the result of which shall prove as far as possible the correctness of the experimental results at Peckham. But, as the chairman has told you, we labour under great disadvantages—and if I were working Barnet myself as an ordinary gas undertaking I should say the same—which have not enabled us to obtain such results hitherto, as I hope and believe we shall ultimately realize. Now, gentlemen, I wish to mention facts, and I shall have no objection, when I have done so, to express an opinion upon those facts. First, there is this question: I think the chairman told you, and if not I may mention it, that the works at Barnet up to the present time, and during the whole twelve months we have been there, are and have been to a great extent experimental. When working out a new system it is almost impossible to have everything go right at first; and so it has happened that many things have interfered with our operations, and up to a late period have continued to do so. Then, again, the price of gas at which the contract was taken was low—I may say very low; low even for the time at which it was taken. But let me not be misunderstood. There were very cogent reasons why that contract should be entered into. There were difficulties in making a working experiment on a large scale, and in other directions; and had I been on the board at the time I should have concurred in entering into the contract which the directors did to supply 20-candle gas at 1s. 4d. per 1000 cubic feet. Still, that low price operates against the working. Then, again, we have the enormous and unprecedented rise in the price of coal. The chairman has spoken of the price when the contract was taken at 14s.; I put it at 16s. per ton, and we have just received notice that the price to us will now be 32s. And it is not only a question of the rise in the price of coal, but of the quality of the coal. The coal companies, in which I was sorry to hear our chairman say he was interested, stick in a lot of "duff." Of course you will say, "Why not reject it?" Recollect "beggars must not be choosers;" and all gas companies are just now down upon their knees to the coalmasters to get enough coal with which to carry on their business, and I do not believe any company get the same quality of coal now that they did three or four years ago. Such is the pressure brought on by this coal misfortune. Then, as you know, at Barnet, we have only control over a certain portion of the works, the other apparatus and work being provided by the Barnet Gas Company. We have no coal store there, and have had great difficulties in consequence during the wet weather of the last few months. The effect of using wet coal in working retorts is most serious. Not only is the quality of the gas reduced, but the fuel account is considerably increased; and, in this respect, we have been working at a disadvantage. The wages also are increased in consequence; and I do not know how we are to be relieved from these difficulties. I should like to see a coal store erected there to keep our coals in, as I am sure it would considerably improve our results. The purifiers provided by the Barnet Company were only half the size they should be; but this is about to be corrected. The company are now erecting two large purifiers, and no doubt this will considerably reduce our cost of purification. The actual purification has been very good; but the cost has been excessive. Then we have had a station-meter of about half the size it should be; that also is about to be corrected. The engine, boiler, and exhausters have been far too small; these things also are to be corrected. But, hitherto, all these things I have mentioned have told against us. Extraordinary charges, such as waggon repairs, &c., have been unfavourable. We have supplied the company with gas at 1s. 4d. per 1000 cubic feet, but for all we have consumed ourselves they have made us pay a considerably higher price.

A SHAREHOLDER: For how long is the contract?

Mr. STEPHENSON: It was made for three years, and will expire this time two years hence. Well, gentlemen, in all gas manufacturing operations the question which ultimately we have to deal with is that of cost, and we show you in our balance-sheet that, under all the disadvantageous circumstances I have detailed to you, we have incurred a loss of £1470 on the twelve months working. Whenever I have a gas company's balance-sheet put into my hands, I generally like to go into it, to pick it to pieces, and try to find out its bad and its good points. And I feel it due to you to act in the same way with our own accounts. I have had prepared for me a profit and loss account of this £1470, and I propose to go through certain items in that account with you. But first I must tell you that there is an error of £101 which has been discovered since the balance-sheet was made up, arising from the coal account having been overcharged to that amount, so that the actual loss is £1369. If we had purchased our coal at 16s. per ton instead of buying it at prices varying upwards, we should have paid during the year £895 less than it has really cost us. On the other hand, it is fair to say that we have realized from our coke £206 more than we otherwise should have done if we had worked throughout at the price which existed when coal was only 16s. per ton, so that the loss occasioned to us on the coal account is about £700. Then with regard to the quantity of gas per ton of coal which we have sold, that has not been favourable. Taking the first half year, we produced on the average per ton of coal only 7080 cubic feet. During the second half year we produced 8467 cubic feet. Mind, this is all 20-candle gas, which is the minimum to which we are bound, and in many cases the gas was over that illuminating power. The last half year, therefore, showed an improvement of nearly 1400 cubic feet per ton of coal. I hold in my hand the carbonizing return which we have made up every week, and which is scrutinized very closely. The return for the last week shows that from a ton of Silkstone coal, not of such good quality as we had at the commencement of the year, we produced 10,000 cubic feet of gas of the illuminating power of 20·66 candles, with 5·5 grains of sulphur per 100 feet—a result which, I think, is highly satisfactory. But our wages have not been during the year such as I could wish to have seen. During the twelve months our wages have been a little over £568, which gives upon the average a cost of 8·46d. per 1000 cubic feet of gas manufactured. That is too high a charge for wages, and I think it ought to be reduced, and to show you that we

are proceeding in the right direction towards a reduction, I should like to make a comparison between the cost of wages in the two half years. In the first six months, I find that we manufactured close upon 6½ million feet of gas, and that our expenses for wages per 1000 feet were 10·95d.; whereas in the second six months, when we manufactured close upon 10 million cubic feet, our wages cost 6·80d. per 1000, showing a reduction of 4·15d.; therefore, as I say, we are proceeding in the right direction. Now as regards coke fuel, which is a crucial point with us, and upon which I hope we shall do better than we have done. At the present moment it is not satisfactory to my mind. The coke fuel has been about 52 per cent. of the coke produced. Although this fuel account is greater than in in making ordinary common gas, it is not a greater account than it would be in making cannel gas; and I should like to give you an authority upon this. In the proceedings before the select committee of the House of Commons, in 1867, upon the supply of gas to the metropolis, Mr. Kirkham, the talented engineer of the Imperial Company, and Mr. Brothers, of the Equitable Company, were examined. Mr. Kirkham was asked this question: "Do you agree with the witness yesterday, Mr. Brothers, who said that it took 12 bushels of Newcastle, and that it would take 23 bushels of Wigan coke, to produce the same carbonizing power?" His reply was, "My experience is that when using Newcastle coke for carbonizing the Newcastle coal, we want about 33 per cent. of the coke produced; whereas with the Wigan coal, using Wigan coke, we want upwards of 50 per cent. I have always found that to carbonize Newcastle coal with Wigan coke would be utterly impossible." Well, gentlemen, our fuel account is 52½ per cent. under the disadvantageous circumstances I have mentioned, and in much smaller works than those engineers were dealing with. I believe the fuel account at Barnet may be reduced, particularly if we were to have our beds of retorts set in sevens instead of fives as they are. In a larger work than that at Barnet I consider the fuel account would be further reduced materially. Now, then, as to our purification. I told you the purifiers were not in the best state; they want enlarging very much. Our purification has cost us 2d. per 1000 cubic feet, which is a large amount for that purpose. I have not the slightest hesitation in saying that purification, with large purifiers, ought to be done for less than ½d. per 1000; therefore there is room for improvement in this direction. As regards wear and tear, I do not think we have at present sufficient knowledge as to what that may ultimately be under the Eveleigh system. I am of opinion that the wear and tear will be higher in this system than in the ordinary system; but at present we have not sufficient facts before us thoroughly to guide our judgments to what I call a safe practical conclusion on that point. Gentlemen, in the observations I have made to you I have endeavoured to account for a very large portion of the loss that we have incurred at Barnet. There is no doubt that the difficulties I have indicated almost invariably occur in the starting of new works; and if in the case of ordinary companies we have to contend with such difficulties, how much more may we expect them when the system with which we are dealing, and which we have to bring into operation, is an entirely new system. I do not think I have been connected with the opening of gas-works (and I have had a good deal of experience in such things) but there have been difficulties to meet, but I have always found that one-half the battle is over when we fairly face those difficulties, find out our weak points, and proceed to deal with them one by one so as to correct them by degrees. Now you will naturally ask, "What is the result? What is the cost of the gas at Barnet?" Well, gentlemen, I have gone into figures upon that point also, and I find that for the past twelve months our gas has cost us slightly over 3s. per 1000 cubic feet. I have not, I hope, wearied you with figures, but I thought it my duty to give them to you as far as possible, and I believe I have fairly put them before you, just as if I were a discontented shareholder in the body of the room, speaking antagonistically to the board of directors. And having done so, you may very fairly ask me what opinion I have formed on the matter. Gentlemen, I have formed an opinion—a very strong opinion—in reference to it, although, perhaps, in that opinion I may not go so far as many men would do. I am a slow man; I advance by degrees, and I never like to put my foot forward with the intention of taking it back. Of course we are liable to error, but as far as my judgment will carry me, I have formed a strong opinion that in fairly-constructed works, of moderate size, gas of a high illuminating power can be manufactured from common coal upon this patent process, at a considerably lower price than with cannel coal. I think that is a very important fact, and it is a fact, if I am correct in the opinion I have arrived at. I have only to say in conclusion that if I continue to be one of your directors I shall, as far as my powers go, and in conjunction with my colleagues, aided by the talent and energy of your consulting engineer, endeavour to put your affairs into the same working order I should endeavour to do if I were working an ordinary gas-works.

A SHAREHOLDER: Is the contract with the Barnet Company absolute and irremediable for the next two years? In the face of the fact that coal can hardly be expected to be lower, there will be an absolute loss to us all that time. And though this would be no evidence of the failure of the patent gas system, it is a serious matter, and if the contract is an unconditional one, it is as well that we should know it. Another question is, whether the report of Mr. Keates and Dr. Odling which we have received, and which has been so fully gone into by Mr. Stephenson, has been sent broadcast to the various gas companies, for I think upon the circulation of that report the adoption of the process very much depends.

A SHAREHOLDER: Following up the observations of the last speaker, I should like to ask at what increased price an agreement has been entered into to supply the new district of the Barnet Company. Then, again, we all know that, as a rule, an inventor swears by his invention; and I must say, for my own part, being a large shareholder in the company, and having invested at a considerable premium, I was a little shaken when I saw, or heard indirectly, that Dr. Eveleigh had retired from the board. I think there should be a very full explanation to the shareholders on this point, because upon that explanation may depend our estimate of the value of our property.

A SHAREHOLDER: I freely endorse that opinion. I think at a meeting of this sort, not only for the sake of those who are present, but for the shareholders at large, there should be nothing like disguise. This is a concern which, if properly carried out, will be a benefit, not only to the shareholders, but to the public; and anything that tends to militate against the intrinsic value of the process, or against the management of the company, should be thoroughly canvassed. With regard to the observations just made, I think Mr. Stephenson said the cost of our gas was 52½ per cent.——

Mr. STEPHENSON: I believe the only reference I made to the figures 52½ was this—that the fuel used by us in carbonizing amounted to 52½ per cent. of the coke produced from the coal.

A SHAREHOLDER: There is one other point needs explanation, and that is with regard to the American treaty. It was told us that we had made a very fortunate treaty for the sale of the patent in America, from which we should receive £250,000. At present we have only received £50,000; and as no reference is made to this matter in the report, and the chairman has not alluded to it, I think it is well that we should be informed what is the exact position in which we stand.

A SHAREHOLDER: I should like to know whether you have made any contract for a supply of coal, or whether you are going on purchasing at the present high prices and whatever extravagant charges may be made by the coalowners in the future. I should like also to know when the contract was made with the Barnet Company for the supply of their new districts at the increased price. You have told us that you have taken a contract for the supply of those districts at an advance of 50 per cent. The old contract price was 1s. 4d. per 1000 feet; 50 per cent. upon that will bring it up to 2s.; but then the gas costs us more than 3s. to make, so that we lose 1s. per 1000 on all the gas supplied under the new contract. Mr. Stephenson has told us that he would even now, if called upon, have entered into the old contract; but I should doubt whether any gentleman of business would enter into such a contract as the new one, knowing that he must lose 1s. per 1000 feet on all the gas supplied. As to the American treaty, I think we ought to have all the information in your possession on the point.

The CHAIRMAN: Gentlemen, I will answer your questions at once, and then perhaps you will allow our consulting engineer to offer a few remarks, which I think it will be for your benefit to hear, and that will be the whole of the programme before us. The first question was as to whether we had issued the report of Mr. Keates and Dr. Odling broadcast; I reply that we have sent out 2000 copies up to the present time. We have ordered from the printers 5000. Copies have been sent to every gas engineer in the kingdom, and to numerous other persons with whom we have been connected, and we intend also to send a copy to every town councillor throughout the country. They have already gone to every town-clerk, and everybody who can possibly be interested in the subject will be furnished with a copy. We desire that the thing shall be thoroughly ventilated, for we have nothing to conceal. The next question has reference to Dr. Eveleigh's retirement. I did allude to this matter in my opening remarks. I told you then that Dr. Eveleigh was the only director to whose retirement I should allude. The question with us came to be whether we should elect him as the managing director, or whether he should leave the board, and in your interest we preferred the latter alternative. It is not pleasant to have to say much upon this subject, but the question was fully and freely discussed by the board; we consulted our engineer (Mr. Mellor), and the conclusion we came to was, that we should be glad if the opportunity arose for the retirement of Dr. Eveleigh without a proposal on the subject coming directly from us. We had, therefore, no hesitation in accepting his retirement when it was offered. Inventors are very good up to a certain point; they discover a process which may be a very good thing in principle, but then you have generally got all they know, and you find they are very impracticable men to carry out what they have invented. All that was known by Dr. Eveleigh had gradually become known to Mr. Mellor, our consulting engineer, and we much preferred that the latter gentleman should carry out the details than that they should be left in the hands of Dr. Eveleigh, who knew nothing whatever of gas making. As to the American treaty, at our last meeting I very fully described the nature of the contract entered into, and I have very little more to tell you respecting it. But little straws sometimes show how the matter is going; beyond that I have nothing to tell you. No further payment is yet due, and people are not likely to pay £50,000 one day before it is necessary to do so. I have no doubt that their arrangements, like our own, have been delayed by the long absence of the report of Mr. Keates and Dr. Odling. One of our first annoyances with Dr. Eveleigh arose out of the fact that a proposition was made to him to go out to America to explain his system. No price was put upon his services—he was to name his own terms; but he declined to go at all. We considered that this was not right towards the company. This was one cause of the ill feeling springing up. We thought that inasmuch as the persons concerned offered him his own price he ought to have gone. But he had "other fish to fry," and the money he received from this company he has invested in other undertakings, from which he hopes to get more than by serving us.

A SHAREHOLDER: Will you say when the next payment is due?

The CHAIRMAN: It comes due in August. Our next meeting will be in July, and by that time we shall know something more about it. After Dr. Eveleigh declined to go out, they applied to our consulting engineer to place them in the best position he could to carry out the system in America. He gave them the most complete practical details that an engineer could give for that purpose. Within the last few days they have applied to us for notarial copies of the agreement, and we hope and suppose they are carrying out their arrangements.

A SHAREHOLDER: Who are the American parties?

The CHAIRMAN: Allow me to complete what I have to say. One of our shareholders, on his return from New York, informed us that the light had been shown at the Fifth Avenue Hotel, but that statement we have not had confirmed. The nature of the contract is this. They have paid us £50,000, and that sum becomes absolutely forfeited if they do not make the second payment. In the meantime they have no further power than to negotiate. They cannot issue a single licence until they make the payments in full. They may make the remainder in annual payments, but a further sum of £50,000 must be paid before August next, in compliance with the treaty. With reference to the Barnet contract, the remark made about our entering into a further arrangement to supply gas at 1s. per 1000 cubic feet loss seems to have good ground. But we do not consider that our cost of making gas is to be 3s. We always bow to Mr. Stephenson's opinion, because he is an experienced man, and no doubt the figures he has given are absolutely correct; but our consulting engineer has drawn up a statement of what he considers ought to be the cost when the works are perfect, and when the Barnet Company have done what they ought to do. With coal at its present price, he estimates that the cost will not exceed 1s. 10¾d. per 1000 cubic feet, as against 3s. which it is costing us now. The figures of the comparative cost of manufacture of gas from Wigan and common coal have been laid before Mr. Stephenson. They are these: "Cost of cannel for 22-candle gas, 3s. 8d.; cost under our system, from common coal, 1s. 10¾d." Therefore the contract is not quite so bad as the shareholder who spoke about it assumes, although I must say he assumed it on very good ground, in the absence of this information. There was a question asked as to whether we were bound to supply the extended district under the old contract. The Barnet Company, considering that we were supplying gas at a loss, met us very fairly after it was agreed to take counsel's opinion on the subject. The contract is an absolute contract for the whole period of three years, and we do not object to its being so, because we shall have the opportunity of carrying out our improvements there. We have outlaid a considerable sum of money at those works, and it would be better for us to carry out our system there than at any other place. Therefore, though the contract shows a loss, it is a necessary thing in order to prove the value of our process. In reply to the next question, I may say we have not entered into any contract for coals. We believe it would be very advantageous to do so; but you know there must be two parties to a contract. We must first find some one willing to sell, and all I can say for those coal companies with which I am connected is that at present prices they are not disposed to do so. Our consulting engineer has a very strong opinion upon the subject, but we think, whether right or wrong, it is not safe to make a contract with the difficulties which are before us. I believe that coal will be much dearer, but that is not the opinion of some other people. I should be inclined to take a contract at present prices, but I do not know whether my colleagues would be of the same opinion.

A SHAREHOLDER: Will you give us the name of the American firm?

The CHAIRMAN: Clews, Habicht, and Co., who are the agents for Mr. Marshall, of New York.

A SHAREHOLDER: Will you tell us whether Mr. Marshall is connected with gas companies?

The CHAIRMAN: He is not.

A SHAREHOLDER: It is only to know whether he has any influence with companies in getting our system introduced.

The CHAIRMAN: I have no doubt that according to the American fashion he is the nominee of a syndicate.

A SHAREHOLDER: It seems that we hold several patents in foreign countries. I wish to know whether there has been any communication with companies in those countries, or any attempt made to carry out those patents?

A SHAREHOLDER: Will you give us some information about the Petersburg and Viborg Gas Company? I see we have made an investment in the shares of that company. I should like to know whether, in addition to the money paid, there is any liability upon those shares.

A SHAREHOLDER: And I should like to know about this investment of £2500 in that company, whether we are allowed to make it according to our Articles of Association, and whether the sanction of the shareholders was given to it. Also whether the sum we have already paid is only an instalment, or is it the full amount?

A SHAREHOLDER: The American treaty is not clear to my mind. I wish to know whether these parties in America, supposing they consent to sacrifice the £50,000 they have paid, have power to retire from their bargain?

A SHAREHOLDER: I want to know whether the gas generator could not be used by this company to effect a saving of labour. I believe it has been used by some companies and effected a great saving.

A SHAREHOLDER: You say that you are waiting to get some professional gentlemen on the board. I think all of us are quite satisfied with Mr. Stephenson, and that we should be better pleased if you would get some energetic man of business on the board. There is a great deal of work to be done, although this is an admirable invention, and I believe the only one to make good gas from common coal. I may just remark that there is a "New Gas Company" coming out. If you look at their prospectus, you will see on the face of it that it displays great energy, and that they announce, in Europe alone, about a dozen places in which they have taken steps to secure patents. Now, it is impossible you can carry this out unless you have energetic men on your board. However admirable your invention may be, it requires untiring energy on the part of the directors, and, therefore, I think you require one or two more business men on the board rather than a mere professional gentleman.

A SHAREHOLDER: I should like to have my mind clear, as I am sure many others would, about this American treaty. There is a sort of feeling abroad that there is some mystery attaching to it—that it is not a real *bonâ fide* treaty on behalf of the Americans at all, but that there is some underhanded proceeding to secure the purpose of interested parties. You stated that there was this treaty, that the name of the person in America was Marshall, and the agents here were Clews, Habicht, and Co. Now, is it or is it not a fact that the treaty with Mr. Marshall has never been direct at all—that the whole thing has been done by the agents here, and that these gentlemen would never give the name of the party for whom they acted?

The CHAIRMAN: The name is in the contract, and we are in direct communication with him.

A SHAREHOLDER: I think it only right I should say that at the last meeting this contract was put upon the table for every member of the association to read, and I think it would have been better for the person who has just addressed us to apply to the secretary at the office, and not to have raised a question or doubt like this at the meeting.

The CHAIRMAN: We are only too glad for the shareholders to show their interest in the company by asking questions. The disadvantage in companies generally is that there is too much indolence on the part of shareholders, and they do not keep directors up to their work. I very fully, at the last meeting, explained the nature of this contract, and, in answer to these questions now put to me, I may say that the Americans have a distinct power to retire from it, forfeiting their £50,000, if they think they can make nothing of it. They tell us now that we made too stiff terms with them, and this has interfered with the progress of the matter. We did it, rightly or wrongly, to the best of our judgment. Directors are not infallible; they can only do their best. One of the gentlemen who has spoken seems to think that the directors of this company have been sitting down quietly, doing nothing whatever to promote the objects of the company. One of the principal objects is to dispose of foreign patents. The first money of any amount in such a company as this generally comes from that source. I do not object to the gentleman asking the question, but, unfortunately, it does not show much confidence in the present directors. With respect to securing foreign patents, one of the members of our board has been travelling on the Continent for the purpose, and at one time he seemed to have brought a large patent to book; and though it has not yet resulted in business, we hope it may do so. We have appointed agents at various places, and are in constant communication on the subject. We delayed our meeting till to-day—firstly, to meet the wishes of the stockbrokers that we should not hold it on an account-day; and, secondly, because we had great hope of being able to announce a contract and receipt of a certain amount of money to the shareholders. Unfortunately, we are not able to do so; but the thing is in active progress. One of the directors received a letter this morning on the matter, and we trust in a short time it will be completed. The question of foreign patents has our vigilant attention; it is a most serious question we consider, because shareholders are very greedy, and in patent matters they expect the money should shower down upon them like hailstones. But it is very difficult to move in a thing like this. I have been myself to one or two towns in the north of England, and our consulting engineer has been sent for to advise towns upon it. There are two very important places with which we are in communication, where we believe our process will be adopted. With regard to new companies which have come out, we do not consider our patent so valuable that we may not improve it, and we have asked our consulting engineer and patent agent to investigate every patent that comes out. When anything has been on trial it has generally been offered to us, and we have asked these gentlemen to give us their candid opinion on it. They have reported to us that everything that has yet come out is valueless. As to foreign patents, and the energy displayed about them in prospectuses, we all know that prospectuses are sometimes drawn by very clever men, who have a very happy mode of appearing to convey things which they do not intend to convey. If you took them before a court of justice you would find yourselves defeated, for they go as near to the law as possible, and yet evade it. It may be said that companies have applied for patents; it does not say that they have obtained them; and our patent agent tells us that there are no patent laws in some of those places. We do not tell you the number of patents we have obtained, and the number of places we have been in communication with, but we are just as energetic as other persons are. As to the Petersburg and Viborg Gas Company, this matter was fully explained at our last meeting. We consider it a good investment, and that we have done very well with it, and I can say no more. We have full power under our articles to do as we have done; we do the best we can, and take care not to run any risks, but act under counsel's opinion on any matter of importance.

A SHAREHOLDER: I should like to know whether or not the sanction of the shareholders was obtained before this investment was made, also what our liability is in reference to it.

The CHAIRMAN: All I can say is that the full amount of the liability is £10,000. The shareholders were not asked, and we are advised that it was not necessary, but the matter was fully explained to them at the last meeting, and met their approval.

A SHAREHOLDER: I believe the Petersburg and Viborg Gas Company have full capital to carry out their undertaking?

The CHAIRMAN: That is so; the full capital is subscribed.

Mr. MELLOR: Our chairman has so fully explained the position of the company from the directors point of view, and Mr. Stephenson from the practical point of view, that I have very little to say. Of course, I accept entirely the responsibility of advising the directors to submit the patent gas of Dr. Eveleigh to the most crucial test possible, by placing it in the hands of two of the most eminent men in the gas profession they could lay their hands on. I was anxious that not only my view of the matter should be put before them, but that they should have the advice of two impartial people who were better able to deal with it than myself. And I rejoice that I did so, because their report has fully confirmed the essential points of our principle. Of course, the quantity of gas which Dr. Eveleigh said should be made out of a ton of coal has not been attained; but you will all bear in mind that I did not endorse his opinion in this respect. I have always stuck to 10,500 or 11,000 feet of 20-candle gas per ton; and I say that when we use the whole of the oil generated, those figures will be attained. I have greater confidence now in the merits of this system than I ever had before, and I am confirmed in my opinion by the report of Mr. Keates and Dr. Odling. You must bear in mind that that report was the worst possible that they could give you. They were bound to support their own position before the public, and to give nothing there but the absolute hard facts. They dare not have given anything more; and therefore, if there has been a bias, it has been rather against than in favour of our undertaking. In fact, I had great difficulty in persuading Dr. Odling to enter into the thing at all, for he had no faith in it. But he has made remarks since his report, privately, which confirm my views more than ever. With reference to Dr. Eveleigh, I may say that in him we had an inventor to deal with—they are not generally excellent people to deal with—who had the germs of an admirable principle, and that is all; and if I had done all that he wished, I should have had 500 men employed for each retort. I am a practical man, and not an inventor. I have done the best I could for the company. I have had to hold myself up before the gas world to be shot at like a target for daring to bring forward a thing that was never known in the gas world before. But I am not ashamed of it, and I fully take the responsibility of all I have stated, for I believe we have the best system in existence. Gas was invented, or rather discovered, some 70 years ago, and this invention of ours is simply a scientific mode of dealing with gas as first discovered. It is not making hydrogen at a large cost, and then carburating it as is proposed by the "New Gas Company." New—it is not new; it is White's patent brought up in another form, and it will certainly fail on the ground of expenditure. With coal at 30s. a ton, I am sure we shall bring down our cost of manufacture to something under 2s. per 1000 feet of 22 or 23 candle gas, as against 1s. 7d., which the "New" Company say will be the cost of their 16-candle gas. With regard to Dr. Eveleigh running away and deserting his standard, I feel very strongly on the matter, and I take the responsibility of having advised the directors to dispense with his co-operation, for, indeed, it was no co-operation. He was like many inventors; he had a great child to deal with, and he wanted to have the whole management of it, and was jealous of me. But I believe the directors did the best thing they could do when they agreed to his retiring from the board. I feel sure of this, by way of comparison only, that from 3d. to 4d. per 1000 cubic feet for wear and tear and other costs will be the excess of difference between 22-candle gas by our system and 14 to 15 candle gas by the old system. Gas companies sell gas, but the consumer buys light, and if you take it light for light, our system is 72½ per cent. cheaper than the present mode. In small works like ours the fuel account under the old system does not come under 30 per cent., and I believe by improvements we shall bring down our fuel account to 30 per cent.; and I believe also that the saving in purification and other things to which Mr. Stephenson has referred will be gradually brought about. But Rome was not built in a year and a day, and your concern cannot be completed all at once. We are approaching to completion, and the great facts brought out by Messrs. Keates and Odling strengthen my hands considerably. I am the representative here of the Petersburg and Viborg Gas Company, and I have had attacks made on me because I have thought it right to adopt this system. So far as I am concerned, I am fully convinced that I have taken the proper course in advising that company to adopt it. Up to the present time I have very carefully abstained from becoming a shareholder in this company; I did not think it right to do so till my opinion was endorsed by eminent men; but I have now felt it my duty to show my confidence in the concern, and have, therefore, bought 600 or 700 shares at their present low price. Speaking about being a target, I dare say many of you read the JOURNAL OF GAS LIGHTING, a most carefully conducted and very impartial paper. In the last number of the JOURNAL, a writer takes up the question of this system, and the report upon it by Messrs. Keates and Odling, and, referring to me, he says, "Poor Mr. Mellor!" I can only say I am very sorry for him. His advice is like all other advice that is gratuitous, and all unsought sympathy. He might have kept it to himself, for I consider him quite unfit to take the matter in hand, and quite incompetent to judge of the merits of this system. He is not a gas manufacturer, but a manufacturer of gas-fittings, and he likes thus to write and advertise himself. I do not think there is a single line in his letter which requires remark from me, and I shall not in consequence run away from my standard as Dr. Eveleigh has done.

A SHAREHOLDER: I am not connected with the Gas Generator Company, but I should like to know whether you do not think there is some merit in their system in regard to the saving of expense?

Mr. MELLOR: That is a question which you had better call at my office to consult me about, and pay my fee for it. This company have examined their patent through me, and I have advised them not to adopt it.

The motion for the adoption of the report was put, and carried unanimously.

A discussion then took place on a motion by Mr. MORRISON that the remuneration to the directors for past services should be £1000, and that in future it should be £500 a year, with £100 additional for each 1 per cent. dividend beyond the 5 per cent. paid to the shareholders.

Ultimately the former portion of the motion was adopted, the remuneration for future services being left for the determination of a subsequent meeting.

A vote of thanks to the chairman and directors terminated the proceedings.

BARNET DISTRICT GAS AND WATER COMPANY.

The First Ordinary General Meeting of this Company was held at the London Tavern, on Friday, the 7th inst.—J. F. BONTEMS, Esq., in the chair.

The SECRETARY (Mr. W. C. Humphrys) read the following report:—

This report embraces three months of the business of the old company and three months of that of the new one.

As no auditors have been appointed, the directors have thought it better not to print the statement of accounts and the balance-sheet, but to read them at the meeting and have them referred to the auditors then to be elected. After they have been audited they can be printed and distributed.

In order to complete the purchase of the late Barnet Consumers Company's Works, finish the new water-works at Finchley, and provide for the payment of the legal and parliamentary expenses of the amalgamation, the directors found it necessary to issue 1500 new shares. These were offered to the shareholders *pro ratâ* at par, and 1205 shares were taken, and some of the remainder have been offered to the smaller shareholders who did not come with in the *pro ratâ* distribution.

The directors have the painful duty to report the death of two of their colleagues—Mr. William Skelton and Mr. Walter Ford—both of them very useful members of the board. The whole of the remaining directors go out of office at this meeting, but are eligible for re-election, and offer themselves accordingly.

The directors have only to add that the prospects of the company are very encouraging, and that a little patience on the part of the shareholders and the customers will be rewarded by the most satisfactory results.

The CHAIRMAN, before moving the adoption of the report, referred in feeling terms to the lamented deaths of Mr. Skelton and Mr. Ford, and he submitted a resolution expressive of condolence and sympathy with the respective families of those gentlemen, which resolution was adopted, and a copy ordered to be transmitted to each. He then read through the items of working account and balance-sheet, and commented upon them; but, as these accounts are still unaudited, it would be improper to publish them. The net result appeared to be that the balance of profit for the half year was about £1615, subject to the payment of the directors fees and secretary's salary, leaving the sum divisible as

dividend £1400 in round numbers, sufficient to pay a dividend of 4½ per cent. on the A shares (*i. e.*, all the capital except that which was held by the Barnet Consumers Company at the time of the amalgamation, and which, according to the terms of the arrangement, will always receive 1 per cent. less), and 3½ per cent. on the B shares. The chairman expressed a hope that, looking at the condition of the Barnet Consumers works during one quarter of the half year, remembering also the large expenditure required at the new water-works at Finchley (which he stated would be completed within the next two months), this result would be considered satisfactory. There were several new sources of revenue opening up to the company—amongst these the supply of water to Friern Barnet, which, though within their district, could not be supplied until the completion of the Finchley works; also the supply of gas to the Great Northern Railway Company's carriages.

Mr. GLAISHER seconded the adoption of the report.

A number of questions bearing on the arrangements made by the directors with the Patent Gas Company were put by Mr. FINLAY, Mr. SPORNE, Mr. CHURCH, and others, and surprise was expressed that, considering the very low price at which that company had supplied a large portion of the district with gas, the profits did not allow of the declaration of a larger dividend.

The motion was then put and carried, and the dividends mentioned by the chairman was agreed to.

The retiring directors were re-elected, and it was understood that the vacancies at the board, caused by the deaths of Mr. Skelton and Mr. Ford, would not be filled up.

Messrs. Lass and Beckworth were appointed auditors of the company's accounts, and resolutions fixing the amount of remuneration to the board, the managing director (Mr. Pontifex), secretary, and auditors, were agreed to.

The CHAIRMAN then proposed a formal resolution, authorizing the board to borrow, on mortgage, the amounts still unborrowed under their Act of Parliament.

The proceedings closed with votes of thanks to the directors and to the chairman.

LIVERPOOL CORPORATION WATER ACCOUNTS.

The receipts and expenditure of the Water Committee for the year 1872 compare with the estimates as follows:—The receipts exceed the estimate by £7975; the expenditure is less than the estimate by £4913. The increase of receipts is accounted for by the natural extension of the water supply, and especially by an increase in the supply to shipping and for manufacturing purposes. The expenditure is less than the estimate principally in consequence of the postponement of certain intended work. The result of the year's transactions is that the expenditure (£141,727) is less than the receipts (£162,767) by £21,040, which, together with the balance (£445) brought from the previous year, now leaves the surplus at £21,485. The depreciation-fund amounted to £58,239 3s. 6d. on the 31st of December, 1872, and the committee recommend that £20,000 be carried from the surplus of last year to the credit of the fund. The sinking-fund set aside to redeem the debt (£64,000) on the Green Lane works, on the same date, amounted to £60,952 14s. 9d. The estimated expenditure for the ensuing year includes the amount estimated to be expended in improvement of the water fittings and the prevention of waste; and is, moreover, considerably increased in consequence of the advance in the price of coal and iron. The committee recommend, after consideration of the estimated expenditure for 1873, that the domestic water-rent be fixed for the present year at 6d. in the pound, and that all the other charges remain at the same rate as during the past year.

The estimated expenditure during the present year is as follows:—Interest, £95,000; depreciation-fund, £2000; working expenses, £66,120; private work, £5700—total, £168,820: gross receipts, £119,435; leaving £49,385 to be provided by domestic water-rent. A rent of 6d. in the pound will raise £48,782. The proposed expenditure on capital account for this year is £96,350, as follows:—Home works, £30,000; Rivington old works, £27,100; ditto new works, £36,250; Chorley, £3000.

LEEDS CORPORATION WATER AND GAS ACCOUNTS.

The annual statement of the accounts of the Leeds Town Council has just been issued by the borough treasurer (Mr. W. E. Hepper). They are for the year preceding Sept. 1, 1872, and are certified by Mr. Alderman Marsden (mayor's auditor), and Mr. Thomas Dawson and Mr. John Eastwood, burgess's auditors. The accounts are printed in the form of a pamphlet, extending to 149 pages. The following are the principal items:—

Water-Works Account.—The capital account shows that the amount borrowed on mortgage to Aug. 31, 1872, was £823,346; the cost of works to Aug. 31, 1871, £407,090; of Moortown extension, £2373; of high-level extension, £26,237; filter-beds, £14,908; Washburn Foot supply, £10,560; Washburn supply, £94,723; Washburn supply, 30-inch mains, £60,164; Lindley Wood reservoir, £72,793; Swinsty reservoir, £17,322; Fewston Reservoir, £854. Allowing for these sums for additional expenditure, and the carrying on of the works, a balance remains of £16,089. The revenue account shows that £48,373 had been received during the year for water-rents, and that other receipts had amounted to £949. On the creditor side the interest on mortgages had amounted to £31,393; interest on reserve-fund, £400; salaries, wages, &c., £3605; filter-beds cleaning, £251; Arthington pumping-station, working expenses, £3786; Headingley pumping-station, working expenses, £764. The total expenses have been £42,180, and profits on the year, £7142, against £8980 last year.

Gas Account.—This account is made up for the year ending June 30, 1872. The outlay on work up to June 30, 1871, was £689,024; and upon meters in use, £85,455—total, £774,480. The additional outlay during the year has amounted to £6168; the mortgages and funded debt to £829,191. Under the head of "gas manufacture" in the revenue account, and the total for which is £65,265, the principal items of outlay have been cannel and coal, £46,316; purifying material, £1892; water, £356; railway carriage and use of waggons, £297; horse and cart hire, £449; wages to gas, engine, and valve men, £15,928; and incidentals, £24. General repairs have cost a sum of £11,569; rates and taxes, £4115; office expenses and incidentals, £470; salaries, £3399; wages of inspectors and day labourers, £5108 The interest paid amounted to £34,284. The receipts for the year have been—by gas and meter rents, £120,540; coke, £9319; tar, £4804; ammoniacal liquor, £4263; old metal, £725; rents of property, £366; and impure lime, £15. The revenue from gas for the year is £12,758.

MANCHESTER (CORPORATION) WATER SUPPLY.

At the Monthly Meeting of the Town Council, held on Wednesday, Feb. 6—the MAYOR in the chair—the Water-Works Committee submitted their annual report, in which it was stated that an additional sum in respect of the amount expended on new works and land purchased during the year was, as before, set apart in accordance with, and as required by, the Act of Parliament; and, as the committee found themselves happily in a position to do so, they had further set apart the minimum sinking-fund of £1 per cent. in respect of the debt owing for the purchase of the works and property of the Manchester and Salford Water-Works Company. All loans falling due during the past year have either been renewed or the amount reborrowed at not more than 4 per cent. interest, whereby an annual saving of £278 14s. 1d. has been effected, and the average rate of interest further reduced from £4 0s. 9d. to £4 0s. 6d. per cent., being the lowest average rate ever paid. During the past year the committee have again paid out of revenue an additional amount of interest accruing upon the further cost incurred for the works being executed in the valley of Longdendale, and also the expenditure which has been incurred in the works at Woodhead reservoir, and in the enlargement of the flood watercourse from Crowden to Torside; and the committee expect that, without any increase in the rates for some years past levied, they will be able in the same way hereafter to provide for such expenditure until this work is completed. The committee have set apart a sum in the revenue account for the renewal of old mains and service mains for the present year. The committee recommend to the council to make and order a public water-rate of 3d. in the pound, and a domestic water-rate of 9d. in the pound, to be made and levied upon all property assessed thereto for the purpose of raising the amount required for payment of the expenses connected with the supply of water within the city during the year commencing on the 1st day of January, 1873. The amount of estimated available rates outstanding on the 31st of December last, out of a gross sum of £43,700 12s. 11d., was £28 11s. 7d.; and of rentals, out of a gross sum of £89,806 0s. 2d. (not including the Salford annual payment), £29 0s. 8d. No arrears on account of rates or rentals for any previous year are now outstanding, and no warrant of distress has been levied during the year.

The committee continue to extend the supply of water by meter for trading purposes, being the mode of supply most equitable for all parties, and by which also great waste is prevented. The testing and stamping of water fittings continues to progress satisfactorily. During the year 34,425 water fittings have been examined and tested, of which 33,651 have been passed and stamped. The expenses attending the stamping office have been entirely defrayed by the fees received. During the past year all the completed reservoirs and works connected therewith, and the whole of the piping, have been maintained in a satisfactory condition. The works at Woodhead embankment, to enable the reservoir to hold water to its full height, have made satisfactory progress during the past year, and it is confidently expected that some water will be held in the reservoir during the present year. During the year upwards of 7½ miles of new iron piping have been laid in place of old piping on renewals account. During the year the full quantity required by the Act of Parliament has been delivered to the millowners on the river Etherow, and a continuous and unlimited supply has been provided for all purposes within the district of the corporation. During the first half of the past year, the construction of the Bottoms reservoir made great progress; but during the heavy flood of the 13th of July the temporary wooden floodwater shoot at the south end of the embankment gave way. This accident has caused some delay in the completion of the embankment; but during the delay at this portion of the works, other portions of the new works—viz., at the waste weir of the Bottoms reservoir, and at the flood watercourse from Rhodes Wood to Bottoms, have been proceeded with. Upwards of 9½ miles of iron piping have been laid in extensions in various townships, and during the year connexions have been made to 4803 additional houses and other premises, at an expense of £1136 14s. 1d.

CAMBRIDGE UNIVERSITY AND TOWN GASLIGHT COMPANY.

The Half-Yearly Meeting of this Company was held on Thursday, Jan. 30. The chair was occupied by the Rev. Dr. PHELPS.

The SECRETARY (Mr. W. Peed) having read the announcement convening the meeting, and the minutes of the last meeting, the following reports and statements of account were presented:—

BALANCE-SHEET FOR HALF YEAR ENDING CHRISTMAS, 1872.

Capital Account.

Dr.		*Cr.*	
Consolidated stock	£37,440 0 0	Expenditure on capital account to Christmas, 1872	£56,589 4 1
New shares	9,360 0 0		
Loans	9,300 0 0		
Balance	489 4 1		
	£56,589 4 1		£56,589 4 1

Profit and Loss for Half Year ending Christmas, 1872.

Dr.		*Cr.*	
Manufacture	£7,160 8 8	Sale of gas and meter rents (less bad debts and allowances)	£8,939 5 11
Distribution	953 18 2	*Residual Products:*	
Miscellaneous expenses	1,224 6 4	Sale of coke (less bad debts, discounts, and allowances)	2,359 18 1
Balance (half year's profit)	2,700 18 8	Sale of tar, sulphate of ammonia, and fittings profit (less bad debts, discounts, and allowances)	694 13 7
		Rents	7 18 3
		Old iron	37 16 0
	£12,039 11 10		£12,039 11 10

General Balance.

Dr.			*Cr.*		
Revenue account		£2,700 18 8	Amount owing for gas	£7,291 3 9	
Manager's ditto		300 0 0	Ditto coke	722 6 0	
Banker's ditto		3,192 10 1	Ditto fittings	1,084 15 8	
Floating assets, Midsummer, 1872	£7,577 16 1		Ditto tar	118 15 5	
Bal. of revenue account, Midsummer, 1872	2,310 8 9		Ditto sulphate of ammonia	272 14 5	
	£9,888 4 10		Ditto rent	2 10 0	
Less dividend, declared July 30, 1872	2,199 12 0				£9,492 5 3
		7,688 12 10	*Stock in hand:*		
Unpaid dividends		3 5 6	Coals	£2,212 6 0	
			Coke	360 3 0	
			Fittings	376 8 3	
			Tar	123 4 0	
			Meters	831 16 6	
					3,903 17 9
			Capital account		489 4 1
		£13,885 7 1			£13,885 7 1

The directors herewith submit to the shareholders a statement of accounts for the half year ending Christmas, 1872, which accounts have been duly audited.

The profit and loss account shows a balance of £2700 18s. 8d. on the half year's working.

The directors recommend a dividend for the half year after the rate of 10 per cent. per annum on the consolidated stock, and after the rate of 7 per cent. per annum on the amount paid up on the new shares, payable on the 1st of February next, free of income-tax.

In consequence of the agitation in the coal market, and the greatly increased price of coal, materials, and labour, the directors have considered it absolutely necessary to further postpone all repairs, renewals, and improvements to the plant and machinery beyond those actually necessary for the due supply of gas to the public. It is by a rigid adherence to this course—which, however, can only be regarded as temporary—that they have been enabled to exhibit a difference of £908 9s. 2d. under the head of trade accounts, as compared with the account of the corresponding period of last year. It will also be observed that no capital has been expended during the past half year.

The stock of coals in hand is larger than usual, which is accounted for from our having required the contractors to send in all coals undelivered on the old contracts, before we commenced carbonizing that supplied on the new contracts. For this reason also the company has not, as yet, to any material extent, felt the effect of the greatly increased price at which their coal is now being supplied. ROBT. PHELPS, Chairman.

The Manager's Report.

Gentlemen,—I have to report that, in accordance with instructions, nothing has been done at the works in the shape of renewals during the past half year. The plant and machinery, however, is in fair working order. I feel it right, nevertheless, to remind you that a considerable sum will have to be expended so soon as a convenient opportunity arises, when the financial prospects of the company are better.

The gas and meter rental for the last half year is satisfactory, but the sale of coke and sulphate of ammonia has not come up to that of former years.

There has been very little variation in the sale of tar and fittings.

(Signed) W. WOOD, Manager.

The CHAIRMAN said that if he were a talking man, he might address the meeting on the present position of gas companies throughout the country, the state of the labour market, and a variety of other topics which might be studied in the newspapers. He should at once proceed to the business of the meeting, premising that he should take the reports of the directors and manager as read, those reports having already been printed and circulated amongst them; and that he should be ready to answer any question or questions the shareholders might have to propose. He had now to move that these reports be formally received and entered on the minutes.

The motion was seconded by Mr. S. PEED, in reply to whom the manager stated that the stand-posts in Brooklands were new ones, the old ones having been quite used up.

The motion was then put and carried.

The CHAIRMAN moved—"That the dividend on the consolidated stock, after the rate of 10 per cent. per annum, and on the amount paid up on the new shares, at the rate of 7 per cent. per annum, be paid on the 1st of February next, free of income-tax."

The motion was seconded by Mr. GIFFORD, and carried.

Mr. S. PEED proposed a vote of thanks to the chairman and directors for their services during the past half year. In doing so, he expressed his satisfaction at the present state of the company, and said he felt confident that they would be able to maintain the dividend they had just determined to declare.

The motion was seconded by Mr. CLAYTON, and carried.

Mr. GIFFORD said the shareholders ought to congratulate the chairman and directors on the very excellent condition in which the company was now found. Reading the newspapers a short time ago, he observed that a company of considerable importance was not able to pay a single shilling as dividend, in consequence of the extraordinarily high price of coals. He was happy that was not the case with them. He did not doubt that they were in a most satisfactory condition; still the price of coal had told severely on almost every branch of industry in which they were used.

The CHAIRMAN said these were times when the directors required expressions of confidence such as those to which he had been listening. He could assure the shareholders that they felt there was a heavy responsibility resting on their hands. Mr. Peed had expressed his satisfaction with the present state of the company, and so also had Messrs. Gifford and Clayton; the first-named gentleman had also gone further and expressed his confidence that they would be able to go on and fulfil the important function of paying their dividends as before, but he was bound to tell them that if the present aspect of the coal and labour markets remain unaltered, he could not guarantee the continuance of the existing state of things. This company was very fortunate in having a larger stock of coals on hand than they might have required, and not only was that the case, but they had a favourable contract to fall back upon, so that the consumption of coals in this half year had been, to a very large extent, on the old contract prices. They had a large stock of coal on hand now, on the new contract price. That must tell; and unless they could keep up their manufacture, and avoid expense in every possible way, they could not be certain that they could go on paying their dividends as at present. He heard unreasonable people, not only in Cambridge, but elsewhere, calling out at such a small advance in the price of gas as had been made. The price of everything consumed was everywhere enhanced; the expense of living was greater to all; yet people were found unreasonable enough to imagine that gas and other companies were called upon to make a sacrifice of income. If income were lowered, how was the enhanced cost of living to be met? Tradesmen advanced the price of commodities in which they dealt; they must do so, and so must their landlords. The gas companies must not meet their case by enhancing the price of gas to suit their exigencies; they were prevented by Government from doing so; and in another way, they must not make more than a certain dividend. That seemed very hard, and it would be a struggle with that company and with all others unless some alteration were made in the law with respect to fixed maximum prices. He thanked the meeting for the compliment they had paid himself and his brother directors, and he felt obliged to the gentlemen present for the favourable opinion they had expressed with respect to the directorate. He assured them nothing would be wanting on the part of that body to preserve the *bona fides* of the company, and to do that which was right both to the shareholders and the public.

Mr. S. PEED said he had received a letter that morning with regard to a colliery that had been closed for 20 years. It was expected that this colliery would be reopened. That would be the means of bringing more coals into the market, and the price might then be reduced.

In reply to Mr. Gifford, the CHAIRMAN said it was true, he believed, that there was an intention on the part of the Gas Companies Association to make application to Parliament for a reconsideration of the statutes relating to those companies. He added that the Cambridge Gas Company had joined the association.

CAMBRIDGE UNIVERSITY AND TOWN WATER-WORKS COMPANY.

The Half-Yearly Meeting of this Company was held on Friday, Jan. 31. The chair was occupied by the Provost of King's College.

The minutes of the last meeting having been read by Mr. PEED, the following report and balance-sheet were presented:—

Your directors herewith transmit the statement of accounts for the past half year which have been duly audited. They propose a dividend on the consolidated stock and new £3 shares for the half year ending Jan. 6, 1873; and on the first call on the new £2 shares from the 8th of October, at the rate of 6 per cent. per annum, to be paid on the 1st day of March next, free of income-tax. To assist in the payment of this dividend, the sum of £120 8s. will be appropriated from the suspense account.

Your directors feel themselves under the necessity of issuing a notice, for which their last report to the shareholders prepared the way, of an increase in the water-rates under the powers allowed them by the Act. The great advance during the last half year in the price of fuel and materials, which does not appear likely to recede, makes it necessary for the directors to meet in this way the additional cost of raising the water.

A comparison of the accounts for the last half year with those of the corresponding half of the previous year will show that the expenditure in the item of fuel has been doubled.

From Lady-day next there will be an increase in the water-rates upon houses, the gross annual value of which exceeds £40, and upon all meter and other special services.

Your directors much regret that the application made to the Assessment Committee for a reduction in the assessment of the company's mains and pipes in the Cambridge Union has not been successful. They had hoped, under the impression left by former communications with the Assessment Board, that their case would have met with some relief, but the Assessment Committee decline to make any reduction.

As the enfranchisement of the copyhold portion of the Cherryhinton estate is now complete, your directors, in accordance with the promises given in their report of August last, have drawn out the accounts of capital and revenue in connexion with the same, and herewith submit them to the shareholders for their inspection.

The engineer and manager's report annexed shows a progress in the company's work, which may reasonably be regarded as satisfactory.

The retiring directors are Mr. Dennis Adams, Mr. C. Balls, and Mr. Edmond Foster.

RICHARD OKES, Chairman.

Engineer and Manager's Report.

Gentlemen,—I have to report that, during the past half year, water from the company's works has been laid on to 116 premises, including the new part of Pembroke College, the increased rental derivable from which is £93 per annum. The total number of premises now supplied is 5760.

In accordance with your instructions, a further trial of creosote at the company's steam boilers has been made during the last half year, but the result of the experiment is in favour of a continued use of coal. A few years ago creosote was to a great extent substituted for coal at the company's works, and with some advantage, but the cost of the oil has increased at a greater rate than that of coal, and the facilities for obtaining a supply of the former are not so great as they were.

The new works for the drainage of the mansion house at Cherryhinton are now in successful operation, the cellars being thereby relieved of the water previously contained therein.

The general condition of the company's works is satisfactory.

(Signed) HENRY TOMLISON, Engineer and Manager.

General Balance, Jan. 6.

Dr.		*Cr.*	
Revenue account	£1,169 8 4	Manager's balance	£59 17 0
Capital account	292 2 2	Banker's balance	374 9 8
Unpaid dividends	23 2 7	Water-rates owing	1,226 0 1
Suspense account	899 16 6	Water accounts (sundries) owing	283 14 9
Accounts owing by the company	907 17 2	Fitting accounts owing	500 0 11
		Stock in hand	303 15 4
		Rents	32 15 0
		Transfer fees	3 15 0
		Improvement Commissioners interest	14 3 6
		Do. (standpost account)	493 15 6
	£3,292 6 9		£3,292 6 9

The CHAIRMAN, in moving the adoption of the report, said in doing so he should not make any elaborate remarks, especially as the report itself contained nearly all that might be said in a general way. With respect to the Cherryhinton estate, it must be borne in mind that although the rent now being received for the estate they had purchased was not enough to meet the interest paid for the loan taken up for the purpose of purchasing the estate, yet that in the course of a short time, it was to be hoped, from the improvements upon the estate itself, together with the drainage of the mansion house, the rent would be such that the estate itself would be taken by some future tenant who would give more for it than they received at present, and that that would be more than sufficient to meet the interest on the loan. The chief value the company had acquired in reference to the estate was in the power they had obtained under the new Act over the whole of the water arising from the springs to Cherryhinton, and that power was by no means inconsiderable. He was given to understand, by those acquainted with the subject, that if the water they were obliged to throw over the gauge before, at the rate of 100 gallons per minute, were only sold at half the value—1s. per 1000 gallons—they would be deriving a revenue from that of at least £542 a year. That would eventually come to them, because if they had that water they would not want to draw on other sources, if their custom was extended so as to require a greater supply than at present. Their custom actually was extending itself in a moderate degree, as compared with the original extent of it. The town itself appeared to be extending, and they could not expect that they would go on only receiving the same amount of income year after year as they did in the infancy of the company. The report of the manager showed that the number of premises supplied during the preceding year was steadily increasing their rental, and that the whole of the annual income had so derived an increase, as they had a right to expect. The number of premises was now infinitely beyond what was contemplated when the concern was first set on foot. The main point to which he must call their attention was the necessity for using the notices for an increase in the tariff of the company, for, as everybody knew, the price of coals was so much enhanced that it was impossible for them to undertake raising the water at the price they did before; and unless they were permited to raise the rate and rent of the water, they would in the course of a very little time have to give notice that they would commence the increase from Easter next, as stated in their report. There seemed to be a little more hope of getting that very important material reduced in price, but it was by no means certain at the present time. The only thing certain was that if they did not get the material where they were at present prevented from getting it, and whence they had it before, with the ingenuity usually found in the British mind, some other places or some other mode of providing fuel would be found; but they might hope that, without having recourse to such modes as that, those persons who were concerned in the present state of things would come to their senses on both sides of the question, that some compromise would be made, or that some agreement would be arrived at not only effectual and satisfactory as regarded the great industries most affected, but to the whole community. He had little more to say, but might observe that the engineer and manager showed that there was progress in the company's work that might be regarded as satisfactory, and that he trusted that the accounts and what arose out of them would be deemed satisfactory by the meeting, and that they might continue to prosper, if not in the very extended way they had done some one or two years previously—they must expect little reverses occasionally—still that this company would show the same elasticity belonging to other similar associations.

The Rev. G. B. POTTICARY seconded the motion, and at the same time asked for some explanation with reference to the "commission" and "interest" charged by the bankers, thinking these to be unusual charges.

Mr. S. PEED explained that they were customary bankers charges, all bankers under similar circumstances charging commission as well as interest on overdrawn accounts.

Mr. C. BALLS said that the sums paid in by the collectors were small, and gave the bankers more trouble than large amounts.

Mr. S. PEED said that between now and next March the company would get in their last quarter's rates, and it was only on account of the rates being necessarily in arrear that the account was overdrawn at the bank.

Mr. ALLEN thought the charges connected with the Cherryhinton estate and the passing of the Act were rather large.

Mr. S. PEED explained that £218 was on actual account of the Act of Parliament, but that the total expenditure connected therewith amounted to £800 19s. 6d., these being the sums referred to by Mr. Allen.

Mr. ALLEN thought the fines and charges for enfranchisement rather large, and required explanation.

Mr. S. PEED said there were regrets as to mine, and minerals, and timber which had to be satisfied ere a settlement could be come to. Nevertheless, a reduction of £30 had been obtained in the demand first made upon the company. The "£150, mortgage costs," did not quite show all that had been done. There was purchase of estate, the conveyance of the estate to himself, the costs of deposit *pro tem.*, the reconveyance from himself to the company, the mortgage from the company to the present mortgagees, and three enfranchisement deeds, as well as the conveyance of the Spring Head. Mr. Foster had been through the accounts, and he believed he had found them all satisfactory.

Mr. ALLEN said he must express his regret at the dividend dropping from 8 to 7½, 7½, and now to 6 per cent. He thought it would be found difficult for them to retrace their steps.

The CHAIRMAN said the additional cost of fuel was a material item in their expenditure, and must be taken into account.

Mr. S. PEED: Yes; 1 per cent. on the dividend. Then there was the Great Eastern Railway affair.

Mr. BOND thought the costs of the professional men very large.

Mr. S. PEED said they were the costs of the solicitors to the mortgagees.

In reply to Mr. GOTOBED, as to the reason the copyholds had been enfranchised,

Mr. S. PEED explained that a company could not hold a copyhold estate and the enfranchisement was therefore a necessity.

Mr. GOTOBED said it was most important that they should let their mansion house at Cherryhinton. He thought they might have obtained all the advantages they had now secured without undergoing the expense of an Act of Parliament.

Mr. S. Peed assured Mr. Gotobed that such was not the case, and he explained what efforts had been previously made to obtain the result now secured.

The Chairman moved—"That the dividend upon the consolidated stock and new £3 shares for the half year ending June 6, 1873, and the first class on the new £2 shares, from the 8th of October, at the rate of £6 per cent. per annum, be paid on the 1st of March, free of income-tax." He hoped that the next time he had to propose a dividend, it would be of a larger amount.

The motion was seconded by Mr. Allen, and carried.

The retiring directors were re-elected unanimously.

Mr. Balls acknowledged the compliment paid to himself and brother directors.

Mr. E. Smith proposed, and the Rev. Mr. Potticary seconded, a vote of thanks to the chairman, which was unanimously accorded.

The Chairman, in acknowledging the compliment, said he was happy if he could be of the slightest service to the company, especially if by so doing he could in any way contribute to the comfort and social benefit of the town of Cambridge. It was true they had met with some little rebuff, but he confidently believed that the natural elasticity of such associations would enable them to recover by rebound their proper position.

The meeting then separated.

METROPOLIS GAS SUPPLY.

MEETING OF DELEGATES FROM VESTRIES AND LOCAL BOARDS.

On Tuesday, Jan. 28, a Conference of Delegates from Vestries and District Boards was held in the Vestry Hall of St. Martin's-in-the-Fields, to consider the best mode of obtaining a cheaper and better supply of gas for the metropolis, and curtailing the present powers of the metropolitan gas companies. Delegates from the parishes of St. Martin's-in-the-Fields, Islington, Holborn, Bethnal Green, Strand, Paddington, Chelsea, Shoreditch, Fulham, Camberwell, St. Pancras, Southwark, and St. Saviour's, Westminster were in attendance.

The Chairman (Mr. Howard, churchwarden of St. Martin's-in-the-Fields) explained that the object of these conferences was to ascertain the views of the local bodies on the gas question generally, and also with reference to bills which had passed in Parliament at the instance of those who were considered to be gas monopolists. From inquiries made in various parts of the country it was found that the provinces were better supplied and cared for in the matter of gas than the metropolis itself. In Edinburgh, for instance, they had gas-lights, public lamps situate 35 yards apart, which consumed 1¼ feet of gas per hour, and for this they paid 16s. per lamp per annum for 3926 hours. In the principal parts of that capital the companies supplied nearly 2 feet per hour for a guinea a year. The inhabitants of Edinburgh had a better light than that which was afforded to the people of the metropolis for £3 10s. to £4 for each public lamp.

Mr. Adams (Wandsworth) moved: "That the present price of gas is in excess of what should be paid as a fair remuneration to the gas companies." He urged that the high price of coal was not a sufficient excuse for the price of gas in the metropolis. In the carbonization of a ton of coals for the production of gas the companies obtained nearly 10,000 cubic feet of gas and 15 cwt. of coke, only 25 per cent. being used in the production of gas. Ammonia was becoming very valuable, and gas water was used very largely in the manufacture of alum and hartshorn. Gas tar had enormously increased in value for dyeing purposes. The time would come when the present consumption of coal, both for light and heat, would be regarded as barbarous.

After some discussion the following resolution was passed:—"That, having regard to the report of the select committee of the House of Commons in 1867, it appears that the ratepayers and consumers of gas are not sufficiently protected against the gas companies."

On the motion of Mr. Gibbons, of Kensington, it was also unanimously declared—"That it is manifestly unjust and contrary to the opinion of the select committee of the House of Commons, that the gas companies should claim statutory provisions for obtaining 10 per cent. on their capital, and that all future increase of capital should be limited to a dividend of 7 per cent."

The following resolutions were subsequently agreed to:—"That recent legislation on the subject of gas has been very unsatisfactory, and that it is important that in all future legislation the vestries and district boards of works of the metropolis should be fully represented by counsel or otherwise in Parliament, and especially that no future power should be conferred upon any gas company to expend their capital either in extending their works or for any other purpose unless the dividends on such capital be limited to 7 per cent." "That the several vestries and district boards of the metropolis be requested to appoint committees for the purpose of watching the course of future legislation with regard to the gas companies, and to act in concert with the Metropolitan Board of Works." "That it is desirable that all vestries and district boards of the metropolis should be heard by counsel and witnesses before the select committees of the House of Commons with reference to The Gaslight and Coke Company's bill and the Imperial Gas Company's bill, and that a committee shall be appointed to determine the best course to be adopted in such opposition."

At the Meeting of the Metropolitan Board of Works, on Friday, Jan. 31—Colonel Hogg, M.P., presiding,

Mr. Newton brought up the following report from the Works and General Purposes Committee:—

"The board, on the 10th and 17th inst., referred to the committee communications from the guardians of the parish of Kensington, a letter from Mr. F. Gibbons, and a resolution of ratepayers of Kensington on the subject of the proposed increase in the price of gas supplied by the Western Gaslight Company, now amalgamated with the Chartered Company. Since the date of the reference, however, it has been intimated to your committee by Mr. Freeman, the representative of the parish of Kensington, that the parties above mentioned do not now desire that the matter should be proceeded with; and this being the case, your committee recommend that the above-mentioned references to them be discharged."

The report was at once agreed to.

At the Meeting of the Metropolitan Board of Works, on Friday, Feb. 8,

The Clerk (Mr. Wakefield) read a report from the Works Committee, in which they stated (*inter alia*) that they had considered the letter from The Gaslight and Coke Company, stating that they have applied to the Board of Trade to appoint commissioners for the revision of the scale of illuminating power and price of their gas, supplied in their district during the present year, and recommending that the committee be authorized to take all necessary steps to obtain evidence, and to appear before the commissioners in the interests of the board and the ratepayers.

A letter was also read from the Board of Trade, stating that application has been made by The Gaslight and Coke Company, to appoint commissioners for the purpose of revising the scale of illuminating power and price of the gas supplied by that company; that the Board of Trade propose to make the appointment as soon as possible; and that the names of the commissioners will be communicated to the board as soon as the appointments are made.

Mr. Newton said this was a very important question. The company had made application for the appointment of commissioners, and there was no doubt the commission would be appointed. The board would have to appear before the commission, and the proposal was to give the committee power to attend, and to do what they might consider necessary. His idea was, they should direct their solicitor to instruct counsel to appear for them, and there might be joint action with the corporation as to the production of evidence.

Mr. Dresser Rogers seconded the motion. He said the question affected the consumers in all parts of London, because if one company were successful they would all make a similar application to the Board of Trade. He thought the time would come when it would be found necessary to place the supply of two such necessaries of life as water and gas in the hands of some body representing the ratepayers.

After some remarks from Sir W. Codrington, Mr. Brushfield, and others, the report was adopted.

Paddington Vestry.

At the Meeting of this Vestry, on Tuesday, Feb. 4—the Rev. J. Moorhouse, M.A., in the chair—the Gas and Water Committee reported further on the subject of the letters received from the gas companies, giving notice of their intention to determine the contracts in June next. The committee requested permission to ask the Imperial Gas Company whether they would supply gas by meter.

The report was adopted.

Chelsea District Board.

The Meeting of this Board was held on Tuesday, Feb. 4—Mr. Livingston in the chair.

The meeting was called specially to receive a report from Messrs. Davidge and Lawrence, delegated by the vestry to attend the conference at St. Martin's Vestry-hall, to consider whether any and what steps should be taken by the co-operation of vestries and district boards in opposing in Parliament the passing of the bills of The Gaslight and Coke Company and the Imperial Gaslight and Coke Company in their present shape.

Mr. Davidge informed the vestry of the result of the conference, and read the resolutions adopted. He urged on the vestry to appoint a committee to watch the progress of these bills during the coming session, in conjunction with the Metropolitan Board. He said at the conference it was stated by Mr. Dangerfield, the vestry-clerk of St. Martin's, that parishes separately had no *locus standi* before the House of Commons, the Metropolitan Board alone having that position.

With respect to the Imperial Gas Company's bill, the Clerk said the vestry could not interfere, as that company did not supply them with gas.

Mr. Lawrence said the question was too important to be lost sight of. It appeared to him that the objects of these bills was to deliver the vestries bound hand and foot to the gas companies. Some time ago they were asked to lower their charges as coals were cheap. Their answer was that the cost of coals was only a small item in the expenditure, there was a large staff to pay, expensive plant, &c., and that the cost of coal made no difference. Now coals had risen in price they were putting the screw on. The value of the residuum from coal and coke had risen cent. per cent. He was of opinion that in future bills the vestries ought to try and get a footing, with the view of being able to purchase the interests of the gas companies. This had been done in Glasgow, Manchester, Liverpool, and other large towns, the result being that they were able to apply a large surplus towards local improvements, freeing of bridges, &c., besides giving gas at a much cheaper price, and reducing the rates for lighting, paving, &c.

Mr. Cox moved that Messrs. Davidge and Lawrence be again requested to act as delegates, which was seconded by Mr. Podmore.

Marylebone Vestry.

At the Meeting of this Vestry, on Thursday, the 6th inst.—Mr. Sedgwick in the chair—the Clerk read a letter from the Imperial Gas Company, stating that they were unable to comply with the vestry's request to state their intentions with reference to the new contract. It would be necessary for them to contract by April next for 400,000 tons of coal, the present price of which was 33s., though the former contract was at 18s. per ton. It was hoped that there might be a favourable change in the coal market in a few weeks, and the company were desirous of continuing the present price for gas.

St. George's, Hanover Square.

At the Meeting of this Vestry, on Thursday Feb. 6—Mr. Seymour in the chair,

Mr. Leslie introduced the question of the possibility of substituting Mr. Silber's system of petroleum oil in the 1700 public lamps of this parish, which, he said, promises a vast increase of light, and a great reduction of the cost to the ratepayers. It was of great importance that they should give encouragement to an invention which, if proved practical, would relieve the ratepayers entirely from the use of coal in the lighting of the parish. When they came to consider the frightful amount they were now paying, he thought they should try some other means of lighting the streets. He held in his hand an account of the invention, but he would rely more upon a communication he had from Dr. Frankland, the head of the scientific world in the metropolis. He (Dr. Frankland) said he had tried it in his house for eighteen months, and found that it gave a great deal more light at a great deal less expense. That was evidence of the highest and most important character; but being desirous of obtaining further information, he asked permission to postpone his motion until the next meeting of the vestry.

The consideration of the subject was adjourned.

The Parliamentary Committee recommended the vestry to oppose the bills of The Gaslight and Coke Company now before Parliament.

General Sir Wm. Codrington moved the adoption of the report.

Mr. Leslie seconded the motion, which was agreed to.

Mile End Old Town.

At the Meeting of this Vestry last week—Mr. Munro in the chair,

The Highways Committee submitted a lengthy report which they had received from the surveyor, giving the result of the experiment of using meters to test the quantity of gas consumed in the public lamps in different parts of the hamlet. The report concluded as follows:—"Owing to the condensation of liquor in the meters, there is no doubt that the result as a test is very unsatisfactory, both to the gas company and the vestry, and upon this ground I have conferred with Mr. Jones, the company's engineer, who suggests that compensating water-meters should be fixed to three other lamps for twelve months, and has offered, in the event of the vestry agreeing to his suggestion, to find the meters and columns specially constructed for that purpose."

A copy of this document having been forwarded to the gas company, the following reply had been received:—

Jan. 14, 1873.

Dear Sir,—As requested in your note accompanying the report of your surveyor on the subject of the metered lamps, I beg to say, first, that I am very much obliged to the Lighting Committee for favouring me with a copy of the report *in extenso*, and I also beg to offer to your surveyor my best thanks for the fair and candid manner in which he has treated the subject, to which, indeed, I feel I have nothing to add. My desire in the first instance when acquiescing in the wish of the committee to test the consumption of the lamps by fixing meters to 3 only out of 786 under the vestry's control, was to offer every facility in my power, confident that my estimate of 20,000 cubic feet per lamp was rather below than over the quantity actually consumed, and I am still of this opinion, notwithstanding the unfavourable result of the experiment. I am therefore most willing, on behalf of this company, to repeat experiments, but with water-meters constructed to admit of drawing off condensed matter, which in the case of the dry meters fixed underground, as in this experiment, was impracticable, and I believe mainly rendered the experiment abortive.—I am, &c.,

Robert Jones.

The committee had therefore resolved to recommend that the offer of Mr.

Jones to repeat the experiment with water-meters, as suggested in his letter, be accepted.

On the motion of Mr. NEWTON, the report was approved, and the recommendation of the committee agreed to.

KILBURN.

A Meeting of Gas Consumers was held at the Queen's Arms Hotel, on Saturday, Feb. 1—Lord GEORGE HAMILTON, M.P., in the chair—to protest against the proposed advance in the price of gas supplied in the Western Gas Company's district.

The CHAIRMAN, in opening the business, said since the Western Gas Company had amalgamated with The Gas and Coke Company notices had been issued that the price would be raised to 5s. 5d. per 1000, and the reason assigned by the company for the advance was that they are about to give the public a superior quality of gas to that hitherto burned—viz., 23-candle illuminating power. He had been assured that no one in that district wanted superior gas, they were satisfied with the present quality. A committee from that district waited upon the gas company on the 27th ult., and stated their grievance, but the directors told the deputation that they would leave the entire matter in the hands of the Board of Trade. If he could be of any service to the consumers in introducing a deputation to the Board of Trade to oppose the gas company he should be most happy to do so. He considered that the inconvenience the public had been subject to of late in the matter of gas should have had some consideration from the company. To persons of limited income the extra charge was a matter of importance, and although he saw a great difficulty in attempting to get the companies to make a uniform price throughout the metropolis, yet he certainly was at a loss to understand how it was that The Gas and Coke Company should charge 5s. 5d. per 1000 for their gas, while the Imperial Gas Company were supplying a gas which, to his observation, appeared to be about the same in illuminating power, at only 3s. 9d. per 1000.

The Rev. DAVID ROWE reported that a deputation waited upon the gas company at Horseferry Road on the 27th ult., and stated that the consumers were willing to be supplied with gas of 20-candle illuminating power, as fixed by the Metropolis Gas Act of 1860, at the price of 5s. per 1000 cubic feet. The directors, in reply, stated that their old, or Westminster consumers, preferred the 23-candle gas at 5s. 5d. per 1000, to the 20-candle gas at 4s. 8½d. The company, therefore, could not supply the western district with a gas of a different illuminating power without the sanction of the Board of Trade, to whom they had resolved to refer the matter. The report closed with a suggestion that a great meeting of consumers should take place as early as possible to make a joint protest against the rise in the price of gas.

The report was adopted.

W. M. TILLEY, Esq., moved the following resolution:—"That this meeting protests against the proposed rise of 5d. per 1000 cubic feet in the price of gas supplied by The Gas and Coke Company, and hereby declares its desire to be served with the 20-candle gas at the statute price of 4s. 8½d. per 1000, in preference to the 23-candle gas at 5s. 5d." Copies of the resolution to be forwarded to the Board of Trade and The Gas and Coke Company.

T. BATE, Esq., seconded the resolution, which was unanimously adopted.

The second resolution was as follows:—"That the Kilburn consumers are hereby authorized to make arrangements with the Kensington committee and the consumers of Westminster for a general meeting of consumers in The Gas and Coke Company's districts, to declare their choice of the gas they will use—*i.e.*, the 20 or 23 candle—and to appoint a deputation to wait upon the Board of Trade on the subject."

This resolution was also unanimously adopted.

METROPOLIS WATER SUPPLY.

At the Meeting of the Metropolitan Board of Works, on Friday, Feb. 7—Colonel HOGG, M.P., presiding,

The Works and General Purposes Committee brought up a report containing the following in reference to the supply of water to the metropolis:—

Your committee report that, having considered the regulations made pursuant to the provisions of the Metropolis Water Act, 1871, and the steps which it is desirable the board should take under the Act, the committee are of opinion that, having regard to the imperfect state of legislation by which no real and effective constant supply is secured, the exclusion of the board from any jurisdiction which could be exercised in favour of the consumers; and, further, to the great cost which the regulations would impose upon the owners of property, and the almost unlimited authority placed in the hands of the water companies, the board should not take any steps at present with a view to giving notice for a constant supply of water in any of the districts of London. That in all probability the attention of Parliament will be directed to the working of the Act, and the probable need of its amendment, so that, by some more satisfactory legislation, a sound system of well-regulated water supply, independent of the views and commercial interests of companies acting for separate districts differently organized, may be secured. The committee, therefore, recommend that the subject be referred back to them, with authority to represent to Her Majesty's Government the imperfect state of the law, and the necessity for new legislation on the subject.

Your committee would also point out that, although considerable expense as to fittings may be necessary wherever the system of constant supply is generally introduced, there is much reason to apprehend that the expense would now be incurred in the metropolis without obtaining a real constant supply. The greater number of the companies still maintain their right to enforce storeage cisterns, although the storeage of water is one of the chief evils against which the constant supply was intended to provide, and the companies also succeeded in getting the 28th regulation so altered that there is much reason to fear the so-called constant supply of water will be given through a minute ferrule—that is, by a driblet taking 14 minutes to fill an ordinary house-pail. The East London Water Company have always contended that a supply through a storeage cistern and small ferrule is in fact a constant supply, and it seems probable that this is all they intend to give in the large district near the Hackney Road, with respect to which notice has been given by the company to put the Metropolis Water Act into operation, and, if so, it seems to your committee that serious cost will be incurred in altering fittings without any corresponding advantage.

The water companies are naturally desirous of protection against every possible waste of water by the introduction of expensive fittings, and they have upon the whole question of constant supply exercised so much influence upon Parliament, and before Lord Methuen's commission, that it seems highly questionable whether the board could, with any advantage, give notice for a constant supply.

Mr. NEWTON, in moving the adoption of the report, said: Of course it was a very important question the making of a constant supply of water for the whole metropolis. It was one which had occupied the attention of Parliament and that board for some years—Parliament for 25 years, and that board for a considerable time—with a view to obtain for the inhabitants of the metropolis a constant supply of water, pure and uncontaminated; and he very much regretted to find that under the Act of Parliament passed two years ago we are not in a fair way to get a constant supply on such terms as would be acceptable to the people of the metropolis. During the time that the bills were under discussion, there was an opinion expressed by several members of this board that a constant supply might be necessary, but that it was possible to concede it on such terms as to make it an evil rather than a blessing, and he thought those words had been prophetic. He thought they were all of opinion that this Act should not be carried into effect. It was strange a Government department should undertake for the metropolis what they do not undertake for a provincial town, and he was afraid they did so to our injury—in fact, they almost protected us to death. In the year 1867 the committee on the East London Water Bill ventured some general observations on the question of the water supply of the metropolis, and he would just read one paragraph of their report. They said it was no part of the legitimate duty of the Board of Trade to watch over the supply of water to the metropolis; that duty, they said, should be performed by the local authority. That was the deliberate opinion of the committee in 1867. How could it be the duty of the Board of Trade to superintend the water supply of the metropolis? They had so many things under consideration, and they had no special staff which they could devote to this special work. There had been recently some severe strictures on the attempt made by the Board of Trade to interfere with the practical management of railways, and Sir Edward Watkin stated that the gentlemen attached to the Board of Trade as military engineers had not sufficient experience to enable them to report on the practical working of railways. He (Mr. Newton) was not going to endorse that, because he had no knowledge of the subject, but they had some knowledge of the water regulations, and they found that the officers of the Board of Trade, instead of taking the part of the consumers, were in favour rather of the propositions of the companies. Two years ago the Government introduced a bill to regulate the water supply of the metropolis, and they did so without consulting any person connected with the Metropolitan Board or the Corporation of London. It was a bill prepared by Mr. Lefevre, who was at the time at the Board of Trade, and carried by him to the Home Office, when he became Under Secretary of State for the Home Department, and it was introduced by him and Mr. Bruce without the slightest consultation with any municipal body in the metropolis who might have been supposed to know something about it. The first condition of the bill was that there should be a constant supply, and such a pressure as would carry the water to the top of the highest houses in the district. That was the first principle. The second principle was that that constant supply should be given under regulations which should be promoted by this board, and that in case of difference the matter in dispute should be settled by appeal to the Board of Trade; and it further, in a certain matter, gave to the municipal authority of the metropolis power to purchase the water companies upon defined principles if it was found necessary to do so. These were the three leading principles of the bill, and these principles received the confirmation of this board, and they (the Metropolitan Board) expressed themselves ready and willing to help the Government in passing that bill. But from the first the water companies became very much on the alert. They exercised their influence on members of Parliament, and they influenced persons not only connected with the water supplp, but with gas and railways; and all the vested interests of all the companies came to the aid of the water companies the moment they thought their privileges were to be interfered with; and Mr. Bruce, not exercising the firmness which should characterize a Minister of State, so far gave way to the representations of the water companies that he did not even propose the bill for a second reading, but withdrew it, and presented a second bill. Well, now, the second bill was anything but what the first was. In the first bill there was provision for a constant supply, and this board was entrusted with the authority to prepare regulations—regulations having three distinct objects: 1. The prevention of waste; 2. The prevention of undue consumption; and 3. The prevention of the contamination of the water. The regulations were intended to serve these three purposes; but, so far as the second bill was concerned, the authority of this board was completely eliminated from it, and it was framed in the interests of the companies. They (the Metropolitan Board) made a representation to the Government that they were opposed to the bill; however, it went on to a second reading; it was referred to a committee, and when it went before the committee the companies felt themselves so powerful that they proposed a new set of regulations altogether, and the Government parliamentary agent, Mr. Wyatt, came to this board with a set of clauses which would have thrown them into the hands of the companies. They were framed with the object of doing so, and he would show them the manner in which they were met by this board. The Works Committee brought up a report in which they strongly objected to the regulations, for the following reasons, which were very clear:—That the clauses now introduced so entirely altered the character of the measure that it was practically a new bill, and that at that period of the session it was too late to enter on the consideration of a measure of so important a character with a view to legislation that year; that the proposal to place the regulations of the water supply in the hands of the Board of Trade was objectionable, such duty properly belonging to the municipal or representative body of the district; that the placing of so much power as was proposed in the hands of water inspectors, to be appointed by the Government and paid by the water companies, was calculated to be prejudicial to the public; and that the bill, as altered, appeared to be a bill in the interests of the water companies and not of the consumers, and was not calculated to be of advantage to the latter. "For these reasons (said the committee) they entertained the strongest objections to the bill, and were of opinion that it would be much better for the consumers that there should be no legislation this year than that such a bill should be passed into law." That was the deliberate judgment of this board in relation to the proposed clauses of the bill before it became law, and the bill as it subsequently passed had justified all these observations, first by the difficulty of getting it to work at all; and, secondly, by the fact that when it was brought into operation it would be in the interest of the water companies themselves. However, it did become law, and it became the duty of this board to submit the regulations to the Board of Trade. They did so, and it was found the Act was so imperfect that the Board of Trade had no authority to proceed upon the regulations. It was therefore necessary to introduce a short bill in reference to this matter, and instead of the tribunal which was appointed being presided over by the Duke of Richmond, who had so ably presided over the Royal Commission on water supply, the chairman was Lord Methuen, of whose special qualifications for the post he (Mr. Newton) was not aware. The Metropolitan Board went to great trouble and expense in reference to the passing of those regulations, and that would not be wondered at when he read some remarks of Mr. Stephenson. Mr. Stephenson stated that if the companies regulations had gone uncorrected, the charges on the property of the metropolis would have been something like £15,000,000 or £16,000,000 sterling. That would have been required to make the necessary alterations to suit the fittings to a constant supply. He had said they went to a great deal of trouble and expense, but even then they were not able to obtain the sanction of the Board of Trade to such regulations as would have entailed only a small cost on the consumers. The amount was very considerably reduced, but the charges appeared to him (Mr. Newton) to amount to something more than one-third of the rental of the houses where the alterations were made. Mr. Stephenson, in the observations he made the other day to the committee, put the cost down as £4,000,000 or £5,000,000—the cost of changes under the Act even with the altered regulations. That was an amount equal to the cost of the main drainage of London. All they had done to secure the sanitary improvement of London was to be changed again at the instigation of the water companies themselves; and this expenditure of £4,000,000 or £5,000,000 did not at all refer to the change of fittings that were inefficient. It only referred to those things in addition which the regulations required. If it were proved that the fittings in the houses were good and efficient—sufficiently strong and sound to resist the constant pressure proposed to be given—there were still many things in addition to any fittings that at present exist that must be supplied by these regulations, and it was the cost of these alone that was estimated in the table placed before them. But in addition to that, if the fittings of the consumers were found not to be good and efficient, a much larger cost would be entailed than that which he had mentioned. The question then really rose as to whether a constant supply, however desirable it might be, might not be objectionable, if given under such regulations as these. The Government saw the propriety of the representations made by this board when the bill was under consideration; but it was very late, the last day of the session, and they were left in the hands of Mr. Glyn, the Government whip, who made this statement to them: "You had better let it go in the form it is in; if it is found that it does not work well, you must come to the Government again and have some new legislation." But then the first thing the Govern-

ment did was to place the origination of legislation in the hands of a parliamentary agent, and it seemed to have no fund to pay the expenses it so incurred; and when there was a large sum due to the parliamentary agent, and the bill became jeopardized, it was a question where the money was to come from. The Board of Trade had no funds, and the anxiety of the parliamentary agent to obtain his fees became so great that he was desirous of getting his bill passed at all hazards. In 1860, when the whole question of the gas supply of the metropolis was before Parliament, a good bill was introduced; but when the parliamentary agents found the promoters were beaten, they saw the necessity of having a bill of some sort, and they accepted the terms of the companies, their object being to pass the last clause—"That the expense of this bill be paid by the Metropolitan Board of Works"—and it cost £5000 or £6000. In like manner Mr. Wyatt was anxious that this bill should pass in order to secure his expenses; and the Metropolitan Board had to pay a sum of £4000 to a parliamentary agent whom they never employed, who brought in the bill quite behind their backs, without any knowledge on their part, and who took out the name of the Metropolitan Board, and inserted instead that of the companies, and then came to them for the means of paying it. He (Mr. Newton) said that was a most unsatisfactory mode of conducting these proceedings, and he hoped when the Government undertook legislation on matters of this kind they would see, when the board had the responsibility of payment, that they should be consulted as to the measure proposed. Then they came to the consideration of the final question—should they accept this bill as it stood? The Legislature had placed the whole supply in the hands of the companies, and the only power the Metropolitan Board had was to give notice that a constant supply must be given; and the moment they had given that notice, the whole authority went from them, either to the Board of Trade or the companies. Well, now, was it a proper or dignified position for the Metropolitan Board to occupy, to have simply to give notice that certain things must be done, but not to have the slightest authority to protect the consumers against either the delinquencies of the companies or the overbearing authority of a Government department? The committee therefore recommended that they should be authorized to make such representations as they thought proper to the Government, with a view to the alteration of the imperfect state of the law. Just one word with regard to the amendment Sir William Codrington had put on the paper. It seemed to him there was very little difference between the amendment and the recommendation of the committee, and he was quite sure the committee would fully consider the matter, and do what was right.

Mr. Fowler seconded the adoption of the report.

General Sir W. Codrington moved the following amendment:—"That the two last paragraphs of the report be not adopted, but that it be referred back to the committee to consider and report upon the cost of the application of the Act to houses of a higher rental than the £140 mentioned in Mr. Stephenson's estimate, and to report whether the expenses mentioned in the last column of that estimate are limited to minor alterations of taps, waste-pipes, &c.; and whether additional and large expense would not be incurred in changing the present supply-pipes inside houses; and finally to consider and report upon the whole question of the regulations under the Water Supply Act of 1871, and the advantage or disadvantage of enforcing them upon the ratepayers of the metropolis." He thought that if anything could be said in favour of passing something stronger than was contained in the report, it was to be found in the statement of Mr. Newton. But when he came to the two last clauses of the report they seemed to him very mild. What he wanted was an expression of the strong disapproval of the board. If the statistics placed before them were true, the ratepayers of London would have to pay a sum of 4 millions for some trifling alterations, and perhaps 5 or 6 millions for the main alterations they were required to make by the water companies. The constant supply was made conditional on the providing of the very cisterns to which the Board of Trade had objected. His opinion was that they should use some strong language, and he therefore moved the amendment of which he had given notice. The houses of the rental he mentioned were a very small proportion of the houses of the metropolis. He wanted, therefore, that the committee should inquire into that, and he wanted the matter referred back in order to get the actual cost in figures, so that the ratepayers may know what they will have to pay if the bill is carried out. The 4 millions would be incurred by very small alterations, and did not include nearly the whole of the expenses that would be entailed. What he wished was a full inquiry, giving the full expense and inconvenience of these alterations.

Dr. Brewer, M.P., seconded the amendment. He thought the speech of Mr. Newton would be a very valuable document, but that it would have no present application. The close of the report was exceedingly gentle, and he did hope it would be returned to the committee, and that a report would be brought up in far more vigorous language.

Mr. Richardson did not believe the Government were aware of the state of things, and he was of opinion that, if a representation were made to them, they would provide a remedy.

Mr. Runtz said the first part of the amendment was no amendment at all, and the second part was to refer the regulations for consideration. Now, they had been under consideration, and that was no amendment at all. The statements in the report of the committee referred to the exclusion of the board from any jurisdiction in the matter, the great expense involved, and the necessity for further legislation; and there was no necessity for stronger censure than that. He thought they should not complain of having been excluded from jurisdiction, but simply represent to the Government the hardships that were inflicted on the poor ratepayers of the metropolis by the regulations.

Mr. Bevan pointed out that the expense that would be entailed in the East-end was 50 per cent. of the rental, while in the West-end the expense was 25 per cent. of the rental; therefore, the poorer parishes had very much reason to complain.

Mr. Freeman could not help thinking they were rushing from one extreme to another. Last year, when there was great danger of cholera, there was a great outcry for a constant supply, and it seemed to be thought they could obtain this great blessing without any cost. He thought not a day should be lost in going to the Government and laying before them the state of the case. They were all agreed the board should have some jurisdiction in the matter if they were to have anything to do with it at all. He did hope Sir William would withdraw his amendment, and that the committee would at once go to Government and point out the complexity of the regulations. Far better do that than waste another week or fortnight in fruitless discussion.

Mr. Lloyd joined with Mr. Freeman in hoping Sir William would withdraw his amendment. What was wanted was an expenditure of such a moderate sum as would be required by necessary alterations.

Mr. Cooke was of opinion that the idea of getting a constant supply under the present regulation was simply ridiculous, because the expense was such that consumers in a poor neighbourhood would never incur it. He hoped the amendment would be withdrawn, because the thing should be pushed on with all speed. They might gain something by being moderate instead of being violent.

Mr. Dalton also hoped the amendment would be withdrawn. He said the strength of their case was the hardship on the poorer classes.

The amendment was then put and lost, and the report was unanimously agreed to.

Increase in the Price of Gas at Macclesfield.—The Town Council of Macclesfield, at its quarterly meeting on Wednesday last, decided to advance the price of gas from 3s. 9d. to 3s. 11d. to consumers of 100,000 cubic feet, all under that amount 4s. per 1000.

THE NATIVE GUANO COMPANY.

At the Meeting of the Metropolitan Board of Works on Friday, Jan. 31—Colonel Hogg, M.P., in the chair,

Mr. Newton brought up a report from the Works Committee on this subject as follows:—

Your committee have proceeded upon the resolution of the board of March 1, 1872 (No. 2), referring it to them to consider and report as to the steps to be taken with respect to the Native Guano Company, the A. B. C. process, and the works at Crossness. The experiments by the company at the Crossness pumping station were, it will be remembered, sanctioned by the board in January, 1871, and subsequently directions were given to the engineer and Mr. Keates, the consulting chemist, to observe and record all the facts bearing upon the operations of the company. The company's works and operations were in no way interfered with or restricted by the board's officers, and the company modified and altered them from time to time according to their own views. Considerable delay was thus occasioned, and it was not until the 27th of August last that the company were able to submit their process to inspection. It was continued from that date up to the 30th of November last, or for a period of about three months. Your committee have now had before them the reports of the engineer and Mr. Keates, which have already been printed for private circulation amongst the members of the board, and which are further submitted with this report. Your committee need not, therefore, set out the details in full, but will merely draw attention to a few important facts. It appears that during the time of the experiment, 11,672,737 gallons of sewage were subjected to the company's process, being about 1-343rd part of the average flow of sewage discharged at Crossness, and 1-686th part of the sewage of London, and about 2-7ths of the quantity proposed to be treated by the company, who were authorized by the board to deal with 500,000 gallons of sewage daily. The quantity of the native guano resulting from the operations was about 142 tons, of which about 61 tons were derived from the sewage and 81 tons added in the A. B. C. mixture; and the total expenditure was £895 3s. 3d., which would place the cost of the manufacture at £6 6s. 4d. per ton, exclusive of rent, interest on capital, depreciation of plant, and other incidental items. On the other hand, with the exception of a few shillings, the company's books show no returns in the shape of sales of manure. With regard to the value of the product, this is placed by Mr. Keates, on the basis of chemical analysis, at 20s. per ton, and he states that, in his judgment, whatever value it may possess beyond this amount cannot be estimated upon any chemical reasoning. In justice, however, to the company it should be recorded that Mr. Keates states that the condition of the effluent water was, on the whole, very good, and that no offensive effluvia or nuisance resulted from the preparation of the manure. At the same time, these are points which, however important in themselves, have no relation to the question of metropolitan sewage. With regard to the commercial results, the cost of production, the chemical value, and the absence of sales speak for themselves, and your committee think it only necessary further to state, that after a careful inquiry into the value of the process, it has not been proved by the experiments at Crossness to their satisfaction that the process could be adopted with any hope of profit to the ratepayers. Your committee may add that, as requested by the board on Friday last, they have received a deputation from the company, who have urged that the value of the manure should not be tested solely by chemical analysis but by agricultural results. The arguments advanced, however, do not appear to your committee to offer any grounds for a modification or alleviation of the opinion above expressed, inasmuch as they establish no new points as regards the value for commercial purposes.

Mr. Newton, in moving the adoption of the report, said this was a very important question, and the report had been drawn up after a very careful experiment conducted by the gentlemen who were the projectors of this scheme for utilizing sewage. The committee had directed their officers to prepare reports on the subject, and after the fullest consideration they had come to the conclusion that the A. B. C. process was not a success, and that there should be an end to the present proceedings. The sewage question was one of great difficulty. Some years ago it was represented by the newspapers that the board had a very valuable commodity in the London sewage, and the ratepayers expected to be recouped a large annual amount of the outlay on the main drainage system by the utilization of the sewage. It was said to have a large commercial value, and the board would be induced by these considerations to grant a concession of the whole of the sewage on the northern side of the Thames to a company which had been in existence for some years, but no proceeds had accrued to the board in consequence of that concession; and he apprehended they would be careful about tying their hands by granting any concession of the sewage on the south side of the river. It was their duty to listen to every representation made to them that was likely to lead to an increase of knowledge on the subject of utilizing sewage. He thought no one would deny that there were fertilizing properties in the sewage, and that if it could be distributed over a sufficiently large area of ground, it would be of immense value; but the question not yet determined was—could that be done at a paying price? Was the cost of distribution not greater than the price the manure would bring? Seeing the large works that had been erected, and the expensive character of the A. B. C. process, he failed to see that any solution had been arrived at that was satisfactory to this board and the ratepayers of the metropolis. A year and a half ago the board conceded to the gentlemen connected with the A. B. C. process the privilege of experimenting at Crossness. They gave them freely a portion of land sufficient for the purposes of the experiment; they charged them nothing for that which belonged to the board, and gave them every facility for conducting the experiment. They (the board) instructed their engineer not to interfere with the company's mechanical arrangements, but simply to report on what took place, and he and Mr. Keates had reported accordingly. He (Mr. Newton) thought the company were sensible of the facilities afforded to them; and the deputation who waited on the board expressed themselves satisfied with the kindness, and even generosity, with which they had been treated. It would have been a very satisfactory thing to the board to have found the success of the A. B. C. process prove of commercial value. Certainly it would have been satisfactory to have seen the rates of the metropolis reduced by the sale of sewage as a manure; but beyond that the Metropolitan Board was not greatly interested. There were two or three considerations that would crop up in the course of the debate; the one was the sanitary part of the question—separating the solid sewage from the water; and the other the commercial part of the question—whether this manure could be manufactured at a paying price. Happily for them they were not much interested in the sanitary part of the question, for when the main drainage scheme was introduced the question arose where the sewage should be carried to down the river, and Mr. Bazalgette consulted some of the most eminent engineers on the subject. The opinion arrived at was, that if the outfalls were down as far as Barking, London would be safe in a sanitary point of view; and there was no doubt of the correctness of this opinion, because, after an experience of some years, they had a city the largest and healthiest in the world; so that, so far as the main drainage scheme was concerned, it was perfect. If it had been a question of putting it into the Thames above the bridges, or any place from which water was taken for domestic purposes, it would have been a serious matter as regarded the health of the inhabitants, and the sanitary question would then have been one to which they would have required to pay close attention; but it did not affect them now. All that they were, therefore, interested in with regard to this matter was to see whether there was a commercial value in the sewage which belonged to them; and it was represented by the company, when they commenced their negotiations with the board, that there was a commercial value which their experiments would satisfactorily show. Since the engineer and Mr. Keates had made their reports, communications had been received from those interested in the company to the effect that, seeing the favourable nature of Mr. Keates report with regard to the effluent water, the process ought to be adopted by the board and others on sanitary grounds. Now, it was quite clear the sanitary part of the question was not part of the object of this company. They called themselves the Native Guano Company, which meant that they were the manufacturers of native guano, and that it was to be commercially remunerative. In the course of the experiment the fact had come out that the effluent water might be turned into streams without polluting them; he should be very careful himself in sanctioning a flow of effluent water into a stream from which drinking water was taken. But let that be as it may, there were many cases of sewage flowing into streams, in which this scheme might be very bene-

ficially applied in order to render the water comparatively pure; but that did not affect this board, and if the company could not show that there was a profit to be derived from their scheme it was quite clear it was useless to the board, although it might be useful to others differently situated. Now, had the process had a fair trial? They (the board) had been simple lookers-on, and their officers had received credit for their kindness and fairness. The inquiry had brought out certain results, some of them of a chemical character, which it was not for him to explain, and which he could not do so well as Mr. Keates had already done, even if he were to attempt to give an explanation. But it was for him to refer to the general results. Broadly speaking, this manure was produced at a cost of six guineas per ton, and its chemical value was £1 per ton, so that there was a loss on manufacture of £5 per ton. But it was said that coal, which formed a considerable item in the expense of manufacture, had been exceptionally high in price during the period of the experiment. Now that was so, and if there was to be in the future a reduction in the price of coal, then it would be only fair to make some allowance in considering the cost of production; but if the price of coal was permanently high, it did not appear to him that any reduction could be allowed in the cost of production with regard to the article of coal. As to the cost of supervision, he thought there was a reduction to be made, because they had necessarily in the small experiment made—only taking 120,000 gallons of sewage daily, while the daily supply was 20 millions—employed comparatively a larger number of servants than would be required if the work was carried on on a more extensive scale, this being a kind of "show" operation. But when the company told them that they paid £8 5s. per ton for a material necessary to the process, and that it could be obtained for £2 per ton, and asked for a reduction in the cost of manufacture of £6 5s. per ton upon the most costly article used, he did not know whether to set it down as trifling with the board; because they really thought this was to be a serious experiment, and that it was an attempt to prove the commercial value of the sewage. But if they did pay £8 5s. for a material which they could have obtained for £2, he said it was trifling with the board; for an experiment conducted in that way was not one they should have been asked to supervise. A document had been put in the hands of the members that was no doubt intended to influence their decision; but after reading it with great care, he did not find anything in it that would induce him to alter the opinion he had formed. There were some slight charges in it against the board—the first that had been put forward—and some complaint was made against Mr. Bazalgette; but Mr. Bazalgette had only done his duty in refraining from suggesting any alterations, or proposing new schemes. The document contained some figures, and they claimed a reduction in wages from £1 10s. 10d. per ton to 13s. 6d.; but as they paid 16s. per ton in Leeds, where labour was cheaper than in London, he did not see how they could ask for a reduction to 13s. 6d. here. All the reductions they proposed amounted to £1 19s. 8d. per ton; but if the estimate of Mr. Keates was correct, that the chemical value of the manure was only £1 per ton, there would be a loss in the cost of production of £1 per ton even under the most favourable circumstances. It was to be borne in mind, moreover, that all these estimates were irrespective of interest on outlay, and, judging from the expenditure in the works of the company, if the process were applied to the sewage of the whole of the metropolis the outlay would be sufficient to carry the drains out to the German Ocean. It therefore appeared to him that the scheme had not been a commercial success, and that there was no hope of the metropolis deriving any profit by it. Under these circumstances it did not demand any greater favour at their hands than it had already received. Inasmuch as it had not been shown to be successful, it was the duty of the board to be firm and unbending in their decision. In conclusion, Mr. Newton moved the following resolution:—"That, after full inquiry into the value of the A. B. C. process, the experiments at Crossness have not proved, to the satisfaction of the board, that the process could be adopted with any profit to the ratepayers."

This resolution was agreed to.

Mr. Newton next moved that it be referred back to the committee to make arrangements with the company for the removal of their works from the pumping station, which, after some discussion, was agreed to.

Assessment of the Warrington Gas-Works.—At the meeting of the Assessment Committee on Friday last, it was unanimously decided to raise the rateable value of the gas-works, by £500 net, inasmuch as the company had failed to supply the balance-sheet for the past year, which was the only means the committee had of arriving at a fair assessment.

The London Gas Stokers Strike.—The Home Secretary has, upon a memorial from the stokers convicted of conspiracy, advised a commutation of their sentences from twelve months imprisonment to four months. The officious meddlers with trades union quarrels, who meet in a little room in Bolt Court, are wroth with Mr. Bruce for conceding to the repentant prayers of the men what he refused to the arrogant demands of these mischievous agitators. Now that their mission has failed, we hope to see their balance-sheet, showing how the subscriptions they raised have been expended. Finding there is no capital to be made out of the London stokers, they have resolved to have a finger in the South Wales miners strike.

Serious Escape of Gas at Manchester.—An accident from the bursting of a branch gas-main, which has caused serious injury to half-a-dozen persons, occurred early in the morning of Saturday week, in Mason Street, Oldham Road. Owing to frost, an iron pipe leading from the main into the house, 59, Mason Street, burst at a point near its entrance into the cellar. A large escape of gas ensued, by which the cellar was speedily filled. The gas seems to have penetrated into the bed-rooms, for it was found in the course of the morning that all the inmates had been rendered insensible by inhaling the noxious fumes. Four of the inmates were found to be so seriously injured that they were at once removed to the infirmary. The others were very speedily restored to sensibility.

An American View of the Gas Stokers Case.—The action of the court in this matter awakened a great deal of sympathy for the stokers. The public recognized the facts on which conviction and sentence were based, but the feeling was general that the men had been punished sufficiently. They had failed in their object, they and their comrades had been discharged; it was the beginning of winter, and work which they could do was known to be scarce. The sentiment was universal that to have let the men go would have been the simplest, easiest, and most popular way of dealing with them. It is impossible not to share this feeling. But if we examine the case carefully, it is difficult to find fault with the justice or expediency of the action of the court. These stokers were engaged in a work the interruption of which was not only a great inconvenience to the public, but a source of danger as well, and the means, besides, of interfering with the employment and diminishing the earnings of thousands of men and women as dependent as the stokers themselves upon their daily wages for their daily bread. Protection against this disaster was sought by means of the contracts requiring notice before quitting work. Those contracts were the sole precaution it was possible to take legally, and they had been illegally broken. The law makes a combination to do an illegal act a criminal offence, and in this case the law was appealed to, to enforce, by criminal prosecution, the observance of a contract essential to the public welfare. Recent legislation leaves workmen free to do about everything except to combine to break obligations voluntarily assumed. It is difficult to see why that exception should not be enforced in every practicable manner. Certainly the observance of contracts is the keystone to the arch of modern society. It is the one principle without which society cannot exist or any one earn an honest living. If severity is justifiable in any case, why is it not so in maintaining this principle?—*New York Times.*

Average Composition and Quality of the Metropolitan Waters, in January, 1873.—The following are the returns of the Metropolitan Association of Medical Officers of Health:—

Names of Water Companies.	Total Solid Matter per Gallon.	Oxygen required by Organic Matter, &c.	Nitrogen.		Hardness.	
			As Nitrates, &c.	As Ammonia.	Before Boiling.	After Boiling.
Thames Water Companies.	Grs.	Grs.	Grs.	Grs.	Degs.	Degs.
Grand Junction	20·30	0·134	0·166	0·003	15·0	3·8
West Middlesex	20·83	0·112	0·181	0·001	15·4	3·8
Southwark and Vauxhall	20·13	0·141	0·146	0·004	15·0	3·8
Chelsea	19·40	0·130	0·146	0·004	15·0	3·8
Lambeth	20·27	0·163	0·120	0 004	15·0	4·0
Other Companies.						
Kent	27·80	0·010	0·234	0·000	20·5	5·8
New River	21·27	0·076	0·167	0·000	16·3	3·6
East London	23·83	0·109	0·204	0·001	17·0	4·2

Note.—The amount of oxygen required to oxidize the organic matter, nitrites, &c., is determined by a standard solution of permanganate of potash acting for three hours; and in the case of the metropolitan waters the quantity of organic matter is about eight times the amount of oxygen required by it.

The water was found to be clear and nearly colourless in all cases but the following, when it was slightly turbid—namely, Chelsea, Grand Junction, Lambeth, and Southwark and Vauxhall. The average quantity of water supplied daily to the metropolis during the preceding month was, according to the returns of the water companies to the Association of Medical Officers of Health, 100,931,281 gallons; and the number of houses supplied was 500,229. This is at the rate of 30·3 gallons per head of the population daily.

The Adulteration of Food Act.—The local boards and vestries of the parishes and districts within the metropolis have now, with two exceptions, complied with the provisions of the Adulteration of Food Act, by the appointment of official analysts. The Act gives the local authorities the option of making the appointment by fixed salaries, by allowances for each analysis, or partly by salary and partly by allowance; and all these alternatives have been adopted by the various boards. In Mile End Old Town, Dr. Corner, the medical officer of health, has been appointed analyst, the question of salary being left in abeyance. In St. Pancras, Dr. Stevens has been nominated. In Hackney, Dr. Tripe, the medical officer, has been elected, the point of salary being left open for future consideration. In St. George's, Hanover Square, and Chelsea, it has also been resolved to include the office of analyst in the duties of officer of health. The Whitechapel Board have appointed Dr. Meynott Tidy, professor of chemistry at the London Hospital, at a fee of one guinea for the first 100 analyses, and a decreasing scale for cases beyond that number. Dr. Hardwicke has been elected for Paddington, Dr. Vinen for St. Olave, Dr. Muter for Wandsworth, and in St. Saviour's the office was voluntarily undertaken by the medical officer of health. In Poplar the appointment has been given to Dr. Woodforde, one of the medical officers of health, payment being made for each analysis on a fixed scale. Dr. Letheby has been appointed analyst for the City; Dr. Bernays, professor of chemistry at St. Thomas's Hospital, has been appointed for Camberwell, Dr. Whitmore for Marylebone, Dr. Pavey for St. Luke's, Dr. Rogers for Limehouse, Dr. Muter for Lambeth and St. George's, Southwark. With three exceptions the local authorities of each district have elected their own medical officers of health as analysts, and in Whitechapel the office was refused by Mr. Liddle, the medical officer, on the ground that medical officers were generally not competent to undertake the duties contemplated by the Act.

Register of New Patents.

901.—Clark, A. M., 53, Chancery Lane, London, "*An improved joint for the lids or covers of gas-retorts.*" A communication. (Complete specification.) Patent dated March 25, 1872.

This invention consists in the formation of one or more recesses or grooves and corresponding rims, or rims in combination with an elastic packing, for making an air-tight joint to the lids or covering plates of gas-retorts.

921.—Smith, G. H., 8, Southampton Buildings, London, "*An improved mode of and appliances for preventing the corrosion of iron pipes or tubes, and keeping them free from incrustation.*" (Complete specification.) Patent dated March 26, 1872.

This invention is based upon the application to the iron tubes to be protected of a material electro-positive to the iron, and which is therefore attacked instead of the iron by the destructive agency that would otherwise corrode or oxidize the latter. An alloy of zinc and tin is made for the purpose. For wrought-iron pipes or tubes the protection is best obtained by the use of couplings or connexions made entirely or partially of the aforesaid alloy. For large cast-iron tubes, such as are used in towns and cities for the conveyance of water, gas, or sewage, it is preferred that the tubes should have annular grooves or channels formed in them for the reception of rings, hoops, or segments made of the protective alloy. When the tubes or pipes to be protected form part of a steam-boiler, rings or hoops made of the alloy are placed upon the tubes at the ends of the pipes, or at such distances apart thereon as will be found most convenient.

938.—Munro, A., 52, Russell Road, Kensington, "*Improvements in the extraction of oil and other hydrocarbons from bituminous substances, and for the production of coke and charcoal, and for the means and apparatus employed therefor.*" Provisional protection only obtained. Dated March 30, 1872.

The application of heated gases, by preference the heated products of combustion, prepared so that the effect of these on the hydrocarbon elements will be simply a stewing effect, and that no combinations may be formed by the action of these heated gases upon the hydrocarbon elements, excepting hydrocarbon combinations, and the arrangement and contrivances generally are such that the temperature may be regulated and uniformly exhibited, and that the process may be at the same time continuous.

944.—Campbell, D., 7, Quality Court, Chancery Lane, London, consulting and analytical chemist, "*An improved process for the treatment of sewage and the production of manures therefrom.*" Patent dated March 30, 1872.

This invention consists in obtaining a precipitate from sewage, as free, or as nearly free as is possible, from either the phosphate of alumina or the phosphate of iron, and for this purpose artificial or manufactured phosphates of lime, which are of themselves practically free from alumina or oxide of iron, are used. The phosphates of lime are dissolved in some mineral acid, and in preference to others in either sulphuric or hydrochloric acid, as being more economical, and the solution so obtained is applied to the sewage, adding before or after, but preferably after, either a milk or cream of lime, or preferably a milk or cream of magnesia and lime, prepared from magnesian limestone, in quantity sufficient to neutralize the acid which was in the acid phosphate of lime added to the sewage.

953.—GEDGE, W. E., 11, Wellington Street, Strand, London, "*An improved meter and motive-power apparatus.*" A communication. Provisional protection only obtained. Dated March 30, 1872.

This invention relates to an apparatus combining the functions of a water-meter and of a driving-engine of small power. The apparatus is composed of four cylinders pierced with four holes, permitting entrance of water by four tubes, communicating with a distributing seat. These cylinders are traversed by four pistons coupled by connecting-rods. The water penetrates to the distributing seat, and thence by four orifices to the four tubes, which lead it behind the pistons, a distributing slide-valve receiving the water from the four tubes closes alternately the four orifices, and thereby gives a to-and-fro movement to the pistons, which, by means of connecting-rods, rotate a crank, and actuate at the same time the distributing slide-valve. By changing the packing, the apparatus may be adapted for steam or any other compressible body, and may be used as a lifting-pump or as a fixed or portable forcing-pump.

954.—CARATTI, V., Belle Vue, Pulross Road, Brixton, Surrey, professor of chemistry, and CHURCH, S. K., Fenchurch Street, London, for "*Improvements in heating, and in generating hydrogen for that purpose.*" Patent dated March 30, 1872.

This invention relates to the generation of hydrogen for the purpose of heating, with a view to the production of steam, and for other purposes where intense heat is required, and consists in the application to such purposes as a fuel of hydrogen, obtained from either fresh or salt water acidulated with an acid, such, for example, as sulphuric or hydrochloric acid, by the employment of a metal, such, for example, as iron or zinc, such materials being contained in an apparatus.

955.—SYMINGTON, W. W., Colne Valley Iron-Works, Halstead, Essex, engineer, "*Apparatus for measuring the flow of sewage and regulating the flow of liquid mixtures used in the purification and deodorization of such sewage, which apparatus is also applicable to other similar purposes.*" Patent dated March 30, 1872.

This invention relates to processes (such as the "A. B. C." process) in which sewage is deodorized and purified by the addition of chemical mixtures thereto, and consists in mounting a water-wheel meter in a race through which the sewage passes and gearing it to a governor, the beam of which carries a pin which engages with a slot in a lever which is suitably geared to the spindle of a valve which regulates the flow of the chemical mixture, the quantity allowed to pass being thereby increased or diminished relatively to the amount of sewage passing. The quantity is indicated on a dial by a pointer connected by a train of wheels to the water-wheel meter.

The relative proportions of the purifying and deodorizing mixture and the sewage may be varied by altering the position of the pin by which the governor lever gears with the slotted lever.

963.—MANENT, J. J. F., 60, Boulevard de Strasbourg, Paris, C.E., "*Improvements in the principal organs of pumps of all kinds, allowing to apply them to purposes to which the pumps in actual use would be unfit.*" Patent dated April 2, 1872.

In pumps according to this invention there are no buckets, valves, or other parts made, constructed, or formed of leather; but by the novel mechanical arrangement, and the disposition of the acting parts and passages of these pumps, india-rubber is enabled to be employed for the valvular portions and spherical valves in conjunction therewith. These, it is preferred, for many purposes, to make in metal, and hollow. In like manner the buckets or pistons of pumps are formed of hollow frames or shells having spherical valves resting on india-rubber seatings.

977.—LAKE, W. R., Southampton Buildings, London, "*Improvements in apparatus to be used in combination with a gas-burner for concentrating the light of the same.*" A communication. (Complete specification.) Patent dated April 3, 1872.

This invention consists in the arrangement of a ring bracket capable of supporting a hemispherical cup in combination with a gas-burner, which extends over the ring bracket in a horizontal direction, in such a manner that if the hemispherical cup is filled with water, or other suitable liquid, and the gas is lighted, the illuminating power of the flame will be concentrated by the water on a limited space below the cup.

983.—RIGOD, J. F. M., 23, Boulevard de Strasbourg, Paris, "*An improved apparatus for carburetting air.*" Patent dated April 3, 1872.

This apparatus consists of a hollow cylinder with another hollow cylinder in the interior thereof, having any required number of compartments of a spiral or other form, and open at their ends, the cylinder being fixed to a horizontal shaft. At one side of the internal cylinder there is a curved cover enclosing a tube used for supplying the air to be carburetted, and also for dividing the carburetting matter into spray. This supply and spray tube consists of an external tube, in the centre of which there is a small capillary tube, having its lower end in the hydrocarbon which is contained in the external cylinder. The spiral or other partitions are covered with threads of wire, cotton, wool, or other dividing material, and when air is supplied to the apparatus by a bellows or fan the liquid rises through the capillary tube and is divided into spray by the air, and strikes upon the metallic or other threads, so that the air will be perfectly saturated with the hydrocarbon, and, when ignited, give intense light and heat.

989.—SELLARS, J. C., Birkenhead, for "*Improvements in obtaining hydrocarbon liquids, gas for illuminating and heating purposes, and coke.*" Patent dated April 4, 1872.

This invention consists essentially in mixing sea-weed, sea-grass, or sea-wrack (called sea-ware) with any of the following substances—namely, coal tar, pitch, bitumen, and mineral oils, either with or without peat, charcoal, or other carbonaceous matter, previous to subjecting the mixture to distillation in stills or retorts, to obtain hydrocarbon liquids and carburetted hydrogen gas, or either of them, and coke. The object in view in adding the sea-ware is to promote separation of the light hydrocarbons, to obtain an increased yield of carburetted hydrogen gas, and to leave a coke fit for use as fuel, or suitable for the manufacture of metal-founders blacking.

994.—LAFROGNE, J. F., 23, Boulevard de Strasbourg, Paris, mechanist, "*Improvements in the manufacture of gas for lighting and heating, and in apparatus employed therein.*" Patent dated April 4, 1872.

According to this invention a bell-shaped vessel filled with air is plunged into another vessel filled with water. Two pipes lead from within these vessels, one for the entry and the other for the exit of air. The air exit-pipe leads into a receiver, where the air is put into contact with discs, impregnated with carburetting substance, and is then rendered combustible. A boiler with two chambers is fitted to the apparatus by which an injection of the steam into the receiver is produced.

1009.—COCHRAN, J. Lyonsdown Villa, New Barnet, "*Improvements in valves, applicable to use on the overflow-pipes of water and other cisterns or vessels.*" Provisional protection only obtained. Dated April 5, 1872.

This invention consists in applying to the overflow-pipes of water cisterns, &c., a valve especially to prevent the escape of sewer gases. The valve is self-acting, opening as the water rises and closing more or less completely as the surplus water flows off by the overflow-pipe. Apertures in the valve-case then admit water above the valve, completely closing and sealing it.

1032.—CLARK, A.M., of 53, Chancery Lane, London, "*Improvements in the manufacture of illuminating gas and in apparatus for the same.*" A communication. Patent dated April 6, 1872.

This invention relates—1. To the manufacture of illuminating gas from hydrocarburets, by the formation of vapours under pressure, which are passed through a superheater for converting them into olefiant gas. 2. To the manufacture of illuminating gas by distilling pulverized coal or Boghead coal, in order to produce gas in the first place in the ordinary way, and then by passing the oily vapours through a superheater containing some porous substance, to transform them into an olefiant gas of greater richness than that first produced.

The apparatus described consists of furnaces having retorts for the distillation of the coal and superheaters either separate or combined therewith. Also small apparatus for the treatment of hydrocarburets, which are first vaporized and then converted into gas by the aid of a superheater.

1073.—BELL, J., jun., and BELL, T., Wishaw, Lanark, N.B., engineers, "*Improvements in apparatus for discharging horizontal retorts.*" Provisional protection only obtained. Dated April 11, 1872.

According to these improvements a small locomotive steam-engine is arranged to run on rails in front of a bench of retorts, or between two benches of retorts facing each other. The driving-wheels are actuated through gearing which can be disengaged, and a pinion can be engaged so as to act on a transverse horizontal rack bar carried by the locomotive. A rake bar is provided that can be fixed upon either end of the rack bar to suit the retorts on either side; and this rake bar is furnished with rakes or plates which are jointed to the bar, so as to close or partly close when the bar is pushed into a retort, and to open and grasp the materials in the retort when the bar is drawn out again.

1180.—FLEURY, F. G., 24, Merrick Square, Southwark, engineer, and TYLOR, A., 2, Newgate Street, London, brassfounder, "*Improvements in water-waste preventers or apparatus for controlling and arresting the flow of liquids.*" Patent dated April 20, 1872.

This invention consists in the application and adaptation of an elastic cap, tube, or chamber for the purpose of relieving the valve of the apparatus by reducing that pressure against its surface whereby it is kept against its seat, so that on such pressure being so reduced, the excess of pressure of the liquid in the main body of the apparatus against the valve shall cause the valve to leave its seat, thereby opening the aperture or way and allowing the liquid to flow through and out of the apparatus. A stem or piece may be provided in connexion with the elastic cap, tube, or chamber for the purpose of ensuring the closing of the valve in case of obstruction.

1234.—PRITCHARD, L. W., Western Gas-Works, Kensal Green, engineer, "*Improvements in valves.*" Provisional protection only obtained. Dated April 25, 1872.

This invention has for its object the improvement of that class of valves known as "Cockey's valves," and consists in so curving the intermediate circular and radial divisions at their lower parts as to utilise a space not hitherto advantageously occupied, thus forming a chamber of sufficient capacity to admit of the outlet-pipe being attached directly thereto, and so avoiding the necessity for an outlet chamber such as that hitherto formed below the body of the valve.

1235.—HOLMES, W. C., 57, Gracechurch Street, London, and HOLLINSHEAD, W., Peckham, "*Improvements in the process of manufacturing gas, and in the apparatus employed therein.*" Patent dated April 25, 1872.

This invention consists of distilling coal or other gas-making material, preferably by means of superheated steam, and then redistilling the products in a retort heated in the ordinary manner, into which a jet of steam or water is conducted the gas thus produced being passed through another heated vessel or retort, to render it more permanent, if found necessary.

The gas evolved during the first distillation may be used to heat the apparatus, or, when purified, with the gas subsequently made.

The apparatus consists of a steam-boiler connected to a coil of pipes arranged in a furnace for superheating the steam, the outlet end of the coil being attached to the retort, which is set vertically, and heated by flues from one of the other furnaces. A pipe leads from the retort to the condenser, which consists of tubes or pipes. Purifiers are also provided, and cisterns arranged to receive the liquid products of the first distillation, and another series of cisterns are placed above the redistillatory retorts for containing the liquids to be redistilled, together with the water or steam. A third retort is employed for ensuring the permanency of the gas, and a second and independent condenser is used prior to the admission of the gas into the gasholder.

1309.—BOX, W. W., Gas-Works, Crayford, Kent, "*Improvements in apparatus used in the manufacture of gas.*" Patent dated May 1, 1872.

The object of this invention is to afford more ready means for clearing ascension-pipes should they become choked, and consists in making the ascension between the retort and bridge pipe removable. This is accomplished by constructing the socket on the mouthpiece of the retort, and that of the bridge or H pipe in two parts which, when the ascension-pipe with its luting is placed between them, are drawn together by claws and screws. The ascension-pipes consequently may be taken down when requisite, and others inserted in their place, the foul ones being burned or otherwise cleaned out at leisure.

To facilitate the raising and lowering of the ascension-pipes, a bar is attached to the bridge-pipes, upon which runs a travelling pulley, with an eye for receiving the hook of a set of blocks and falls.

1359.—CARTER, G. H., Mottingham Lodge, near Eltham, Kent, "*Improvements in the construction of gas-stoves, applicable for heating public and private buildings, pineries, hot-houses, graperies, and such like buildings and purposes.*" Patent dated May 4, 1872.

The features of novelty of this invention consist essentially in fixing a helical plate or plates of metal within a small upright cylinder of sheet metal for a short distance, and then filling up the rest of the cylinder with curled or twisted pieces of sheet metal to retard the passage of the heated air or gases, and further in some cases surrounding the stove with a jacket containing water for the circulation of hot water through pipes suitably arranged.

1362.—FISH, R., Gas-Works, Hornsey, "*Improvements in the method of and apparatus for revivifying materials used in the purification of gas.*" Patent dated May 4, 1872.

This invention relates to the revivification of oxide of iron *in situ*, or in the vessel in which it is used, and consists in providing each purifier with an inlet and outlet other than gas-ways, which may be termed air-ways. The inlet is furnished with a valve to which is attached a short conical pipe or opening. Within the mouth of this pipe a nozzle in connexion with a pipe from an ordinary steam boiler is inserted, the use of the apparatus being as follows:—

When the purifying material has become inert the gas-ways are closed, and the air-ways are opened. A tap is then turned, and steam is allowed to issue from the nozzle into the purifier. The effect of this is to cause a rapid current of air to flow through the purifier, permeate the purifying material in its course, and from thence pass to a suitable outlet, in or near to which a jet of steam may be made to play for the purpose of more completely removing and diluting any objectionable exhalations, the result of the process being a complete revivification and conversion into oxide of iron.

The induction of a current of air is no novelty, but its introduction mixed with steam is, and this renders the process which was previously unsuccessful highly advantageous.

Share List
OF
Metropolitan Gas and Water Companies.

(Corrected by Mr. F. N. Golding, Sun Court, Cornhill, from the latest Stock Exchange Quotations.)

Number of Shares issued.	Amount per Share.	Name.	Amount paid up p. Share.	Dividend p. Cent. p. Annum.	Latest Quotations.
	£	GAS COMPANIES.	£ s. d.	£ s. d.	£
8000	20	Anglo-Romano	20 0 0	10 0 0	20 — 22
5000	20	Bahia (Limited)	20 0 0	3 0 0	10 — 11
1000	20	Do., preference	20 0 0	10 0 0	23 — 25
750	20	Do., do., redeemable	20 0 0	10 0 0	21 — 23
40000	5	Bombay (Limited)	5 0 0	6 15 0	5½— 6
10000	5	Do., third issue	4 0 0	6 15 0	¼—1 pm.
10000	20	British (Limited) (Norwich, Hull-Sculcoates, Hanley, Tunstall & Shelton [Potteries], Trowbridge., and Holywell.)	20 0 0	10 0 0	32 — 34
7500	20	Cagliari (Limited)	20 0 0	7 0 0	15 — 16
160000	10	*Chartered* A shares	10 0 0	10 0 0	14½— 15
20000	10	Do., A	2 0 0	10 0 0	3—3½ pm.
10000	10	Do., B shares, 4 per cent. max.	10 0 0	4 0 0	6¾— 7¼
25000	10	Do., 5 per cent. preference	10 0 0	5 0 0	12½— 13⅜
20000	10	Do., 5 per cent. preference, second issue	8 0 0	5 0 0	2 —3 pm.
20000	10	Do., 10 per cent. preference	10 0 0	10 0 0	19½— 20
12000	25	Do., D shares	25 0 0	10 0 0	48½— 49½
17490	100	*Commercial*	100 0 0	10 0 0	153 —156
20000	20	Continental Union	20 0 0	8 0 0	21¾— 22¼
10000	20	Do., new	10 0 0	8 0 0	1 —1½ pm.
10000	10	Do., new, 1872	2 10 0	8 0 0	¼—¾ pm.
10000	20	Do., preference (Grmny.: Strsbg. France: Cette, Nismes, Montargis Vienne, Roanne, Beaucaire, Rueil, Albi. Italy: Milan, Genoa, Parma, Modena, Alessandria, Messina.)	20 0 0	7 0 0	24 — 26
5000	10	*Crystal Palace District*	10 0 0	10 0 0	15½— 16½
5000	10	Do., preference	10 0 0	6 0 0	10½— 11½
10000	10	Do., new shares	10 0 0	7 0 0	11 — 12
23406	10	European (Limited)	10 0 0	8 0 0	14½— 15
12000	10	Do., new shares (Boulogne, Amiens, Rouen, Caen, Havre, & Nantes.)	5 0 0	8 0 0	2¼—2¾ pm.
4054	10	Foreign and Colonial (Limited)	10 0 0	.. ..	10 — 10½
5000	10	Hong Kong (Limited)	10 0 0	10 0 0	13 — 13½
1560000	100	*Imperial*	100 0 0	10 0 0	162 —165
26000	12½	Do., new shares	12 10 0	7 0 0	15¼— 15¾
1300	100	Do., bonds	£100	10 0 0	195 —200
56000	50	*Imperial Continental* (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam., Aix-la-Chapelle, Antwerp, Bordeaux, Brussels, Cologne, Frankfort-on-Maine, Haarlem, Stolberg, Toulouse, & Vienna.)	43 15 0	9 2 6	62½— 63½
3000	40	*Independent*	40 0 0	10 0 0	66 — 68
3000	10	Do.	10 0 0	5 0 0	8 — 9
3000	20	Do.	20 0 0	7 10 0	25 — 26
	10	Do., D	1 0 0	.. ..	
250000	Sk.	*London*	100 0 0	10 0 0	152 —155
£15000	Sk.	Do., 1st preference	100 0 0	8 0 0	115 —118
	Sk.	Do., 2nd preference	100 0 0	6 0 0	
	Sk.	Do., 3rd preference	100 0 0	6 0 0	
£18781	100	Do., 1st preference stock	100 0 0	6 0 0	
£11828	100	Do., 2nd preference stock	100 0 0	5 0 0	
15000	5	Malta and Mediterranean (Limited)	5 0 0	5 0 0	3¼— 3⅜
6000	5	Do., preference	5 0 0	7 0 0	5⅜— 5⅝
20000	5	Mauritius (Limited)	2 0 0	7 0 0	2 — 2⅛
25000	20	Monte Video (Limited)	20 0 0	.. ..	24½— 25½
8000	10	Nietheroy, Brazil (Limited)	10 0 0	.. ..	2⅛—2 dis.
30000	5	Oriental (Calcutta)	5 0 0	9 0 0	6¾— 7¼
30000	5	Do., new shares	2 10 0	9 0 0	1—1½ pm.
10000	5	Ottoman (Limited)	5 0 0	nil.	1¾— 2¼
17500	10	Pará (Limited)	10 0 0	6 0 0	9 — 9½
27000	20	*Phœnix*	20 0 0	10 0 0	31½— 32¼
3600007.	100	Do., new	45 0 0	7 10 0	13—15 pm.
144000l.	Sk.	Do.	100 0 0	5 0 0	90 — 92
5000	20	*Ratcliff*	20 0 0	10 0 0	31 — 33
34000	20	Rio de Janeiro (Limited)	20 0 0	10 0 0	38 — 40
7359	5	Singapore (Limited)	5 0 0	7 10 0	4½— 5
2000	5	Do., preference	5 0 0	7 10 0	5½— 6
1500	32½	Shanghai	32 10 0	12 0 0	32 — 33
4000	50	*South Metropolitan*	50 0 0	10 0 0	83 — 85
4000	12½	Do.	12 10 0	10 0 0	20 — 21
20000	12½	Do., new shares	2 10 0	10 0 0	4—5 pm.
15000	10	*Surrey Consumers*	10 0 0	10 0 0	15½— 16
10000	10	Do., new	7 0 0	10 0 0	4½— 5
9000	4	United General (Limerick)	4 0 0	5 0 0	2¼— 2⅜
1500	10	*Wandsworth and Putney*	10 0 0	10 0 0	14 — 15
1500	10	Do.	10 0 0	7 10 0	11 — 12
2957	10	Do.	10 0 0	7 0 0	
993	10	Do.	3 0 0	7 0 0	
16000	5	*West Ham*	5 0 0	9 0 0	7¼— 7¾
10000	5	Do., new shares	1 0 0	9 0 0	1—1½ pm.
		WATER COMPANIES.			
60000	10	Berlin	10 0 0	11 10 0	18 — 20
12000	100	Chelsea	100 0 0	6 0 0	116 —118
18000	100	East London	100 0 0	6 0 0	120 —122
10000	50	Grand Junction	50 0 0	8 10 0	80 — 82
5840	25	Do., ¼ shares	25 0 0	8 10 0	40 — 41
2160	25	Do., new do.; maximum dividend, 7½ per cent.	25 0 0	7 10 0	32 — 33
4396	100	Kent	100 0 0	6 0 0	120 —122
5339	100	Lambeth	100 0 0	6 5 0	116 —118
1161	100	Do.	20 0 0	6 5 0	
442	100	New River	100 0 0	8 0 0	170 —180
4443	100	Do.	20 0 0	8 0 0	36 — 38
4000	100	Do., debenture stock, 4 per cent.	100 0 0	4 0 0	95 — 98
3036	100	Southwark and Vauxhall	100 0 0	5 10 0	103 —105
1296	100	Do., preference stock	100 0 0	5 0 0	99 —101
	100	Do., D shares	100 0 0	5 10 0	102 —104
		Do., G shares	.. ..	4 10 0	
	100	Do., new ordinary	.. ..	4 10 0	
1600	100	Do., new ordinary, No. 1	40 0 0	4 10 0	
13913	61	West Middlesex	61 0 0	£6 per sh.	117 —119

Price Current.

CASTINGS.—*Per Ton.*
Average Weight of Cast-iron Gas-pipes, per Yard.

1 in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lbs.

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow.	Newcastle and Middlesboro'.	Wales.	Yorkshire, Derbyshire, and Staffordsh.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Pig Iron, No. 1 (g.m.b.)	—	5 14 6	—	—	—
1½ and 2 inch Socket-pipes	11 0 0	10 10 0	10 10 0	10 10 0	10 10 0
2½ and 3 inch do.	10 10 0	9 15 0	9 10 0	9 15 0	9 15 0
4 and 5 inch do.	10 0 0	9 10 0	9 0 0	9 10 0	9 10 0
6 inches and upwards, do.	9 10 0	9 0 0	8 17 6	9 0 0	9 0 0
Retorts, 1st fusion, hot blast	10 10 0	9 15 0	10 15 0	9 15 0	9 15 0
Do., 2nd do., cold do.	—	—	—	—	—
Tank Plates, ¼ thick and above.	11 10 0	11 0 0	11 0 0	11 0 0	11 0 0

WROUGHT-IRON TUBES AND FITTINGS.
(Subject to 25 per cent. discount.)

Internal Diameter in Inches.	2	1½	1¼	1	¾	½
TUBES.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Assorted, 2 to 14 feet, per foot	1 9	1 2	0 11	0 8	0 6	0 4½
Pieces, 12 to 23¼ inches, each	3 0	2 0	1 8	1 4	1 0	0 9
Do., 3 to 11½ do.	2 3	1 4	1 1	0 11	0 8	0 6
Longscrews, 12 to 23¼ do.	4 0	2 6	2 0	1 6	1 2	0 11
Do., 3 to 11½ do.	3 0	2 0	1 3	1 0	0 10	0 8
Bends and Lamp Bends	4 3	2 3	1 9	1 3	0 11	0 8
Springs, various elevations	3 3	1 8	1 4	0 11	0 9	0 7
FITTINGS.						
Square Elbows, equal or reducing	3 6	2 3	1 9	1 2	0 10	0 8
Round Elbows	3 10	2 6	1 11	1 4	1 0	0 9
Tees, equal or reducing	3 9	2 6	1 2	1 3	1 0	0 9
Crosses, do.	5 3	3 6	3 0	2 3	1 9	1 5
Sockets, reducing	1 3	0 11	0 9	0 7	0 6	0 5
Caps and Plugs	1 3	0 10	0 8	0 6	0 5	0 4
Nipples and Backnuts	1 0	0 8	0 6	0 4	0 3½	0 3
Sockets, plain	1 0	0 7	0 6	0 4	0 3½	0 3
Iron Main-Cocks	18 0	11 0	8 6	6 6	4 6	3 6
Syphon Boxes, 2 quarts	23 0	19 0	18 0	17 0	16 9	—

LONDON METAL MARKET.—*Per Ton.*

	£ s. d.		£ s. d.
Copper, tough cake	92 0 0	Tin, English block	148 0 0
Iron, Welsh bar	12 10 0	Tin-plates, best coke I. C.	2 1 0
Lead, English pig	22 5 0	Spelter, foreign	25 0 0

FREIGHTS.

COASTWISE.—*Per Ton.* *Newcastle*—	s. d.	s. d.
Chatham and Rochester	7 0	—7 6
Cork		—
Dover, Folkestone, and Ramsgate		—8 0
Dublin		—
Exeter Quay		—
Ipswich		—
London (from Leith)		—7 6
London (Pool)		—8 0
Lowestoft and Yarmouth		—
Portsmouth and Southampton		—9 6
Plymouth	£10 5s. p. keel.	
Shoreham		—
Whitstable		—7 9
Weymouth		—

FOREIGN.—*Per Keel.*	£ s.	£ s.
Barcelona		—21 0
Bordeaux		—12 0
Boulogne and Calais	8 10	— 8 15
Cadiz		—14 0
Cronstadt		—
Copenhagen		—
Genoa		—20 0
Hamburg		— 9 0
Havre de Grace		— 9 10
Leghorn		—19 0
Lisbon		—11 0
Rotterdam		—10 0
Stettin		—
Trieste		—20 0
Venice		—23 10

GAS COALS.—*Per Ton.*

Scotch Cannels, f.o.b.—	s. d.
Boghead, at Bo'ness	77 6
Capeldrae, at Burntisland	45 0
Cowdenbeath, do.	—
Donnibristle, do.	32 0
Kirkness, best, do.	—
Lesmahago (Auchin.), at Granton	46 0
Do. (Duke of Hamilton's), do.— Main	43 6
Wee	46 0
Do. (Nitshill Co.'s), do., and at Glasgow	47 6
Lochgelly, at Burntisland	—
Milton and Crosshill	35 0

Scotch Cannels, f.o.b.—	s. d.
Arniston, at Leith	40 0
Billeyford, at Leith	26 0
Elphinstone Tower, do.	30 0
Grange Cannel, at Bridgeness	—
Haywood, at Granton	—
Kinniel, at Bo'ness	35 0
Lanemark, at Glasgow	—
Lochore, at Burntisland	45 0
Myles' do.	—
Pirnie, at Methill	26 6
Waverley Seam, at Burntisland	—
Old Wemyss Cannel, at Wemyss	45 0
Wemyss Rhumes Cannel	22 6

Newcastle (Unscreened)— Per Ton.

Haswells, Nettlesworth Primrose, and South Pelaw — —

Felling, Framwell Gate, North Pelton, Walker's Primrose, West Wear, and Whitwell Primrose — —

Burnhope, Charlaw, Derwent, East Castle, Edmondsley, Eighton Moor, Hartlepool Pelaw, Holmside, Lambton's Gas, Lanchester Pelaw, Medomsley, Mickley, New Pelaw, Pelaw Main, Pelton Main, Ravensworth, Seaham, South Moor Pelton, South Leverson, Townley Main, West Pelaw, Wearmouth Hutton, and Witton — —

Peareth, Ravensworth Pelaw, Waldridge, West Garesfield, and West Pelton — —

Brancepeth, Dean's Primrose, Londonderry Gas, New Pelton, South Peareth, Urpeth, Washington, and West Leverson — —

Ramsay's Newcastle Cannel — 30 0

Wigan Cannel, f.o.b. at Liverpool — 40 0

CHEMICALS.

Ammonia—	£ s. d.
Sulphate, white and grey	19 10 0
Do., brown, 23 per cent.	18 0 0
Benzole, 30 per cent.	0 3 5
Carbolic	0 1 4

Iron Salts—	£ s. d.
Green and rusty Copperas	3 0 0
Dry do.	2 15 0
Sulphuric Acid	3 10 0

SUNDRIES.

	£ s. d.	£ s. d.
Best Newcastle Fire-bricks, per 1000	—	4 0 0
Do., Fire-clay Retorts, per foot run	0 7 0	— 0 7 6
Cliff's Fire-bricks, at Wortley, per 1000	—	3 10 0
Ingham's best Wortley Fire-bricks, on rail or boat, per 1000	—	3 10 0
Farnley Iron Co.'s Fire-bricks, do., do.	—	3 10 0
Wortley Fire-clay Retorts, per foot run	0 5 6	— 0 7 6
Tarred Rope Yarn, per cwt.	—	—
Fraser's best Fire-bricks, f.o.b. at Inverkeithing	—	2 10 0
Do. Retorts, per foot run	0 5 0	— 0 7 6
Do. Ground Fire-clay, per ton	—	0 10 0
Stourbridge Fire-bricks, per 1000	—	3 0 0
Do. Fire-clay, per ton	—	0 12 0

APPLICATIONS FOR LETTERS PATENT.

248.—Robertson, J., Nitshill, Renfrew, N.B., "Improvements in machinery or apparatus for forcing, exhausting, or measuring air, gas, or other fluids or liquids." Jan. 21, 1873.

257.—Newton, A. V., 66, Chancery Lane, Middlesex, "Improvements in apparatus for applying steam to the raising and forcing of water and other liquids." A communication. Jan. 22, 1873.

266.—Jacobsen, F., Redfern House, Edinburgh, "Improvements in treating sewage, for the purpose of making manure and purifying sewage." Jan. 23, 1873.

274.—Patterson, R. H., Hammersmith, "Improvements in the purification of coal gas." Jan. 23, 1873.

314.—Girdwood, R., Edinburgh, "Improved appliances for illuminating by means of gas." Jan. 27, 1873.

325.—Imray, J., Southampton Buildings, Chancery Lane, Middlesex, "Improvements in the means of subjecting substances to heat, for effecting continuously drying, roasting, calcining, evaporating, distilling, gas-producing, and other like operations, and apparatus therefor." Jan. 28, 1873.

329.—Rydill, G., Dewsbury, "Improvements in steam-boilers, steam-generators, furnaces, and apparatus for generating steam, heating fluids, gases, and for other purposes; for obtaining motive power and applying heat." Jan. 28, 1873.

331.—Latham, B., 7, Westminster Chambers, Victoria Street, Westminster, "Improvements in purifying sewage, and treating products obtained therefrom for the production of manure." Jan. 28, 1873.

334.—Silber, A. B., Wood Street, Cheapside, London, merchant, "Improvements in apparatus for lighting and heating purposes." Jan. 28, 1873.

341.—Joslin, W., Lower Norwood, Surrey, "Improvements in furnaces, and in the method of charging them with fuel, to improve its combustion and prevent smoke." Jan. 28, 1873.

347.—Young, G., Grangemouth, N.B., "Improvements in lamp-lanthorns and in the lenses used therein, the same being also applicable to lighthouses." Jan. 29, 1873.

371.—Lake, W. R., Southampton Buildings, London, "Improvements in fire-alarm and water-supply apparatus for preventing conflagrations." A communication. Jan. 30, 1873.

372.—Jones, D., Inverness, Scotland, "Improvements in apparatus for forcing in liquids or fluids, applicable to forcing inflammable fluid or liquid into furnaces of various kinds and at various pressures, whether of kind or degree." Jan. 30, 1873.

GRANTS OF PROVISIONAL PROTECTION.

3863.—Simon, L. and R., Nottingham, "A new or improved method of applying petroleum products to illuminating purposes and apparatus belonging thereto." A communication. Dec. 20, 1872.

104.—Gedge, W. E., 11, Wellington Street, Strand, Middlesex, patent agent, "A new or improved water-meter." A communication. Jan. 10, 1873.

106.—Pritchard, G., Smethwick, tube maker, "Improvements in machinery for strengthening, smoothening, and finishing round metal tubes and bars." Jan. 10, 1873.

115.—Holman, S., 10, Laurence Pountney Lane, London, engineer, "Improvements in gas-retort mouthpieces, lids, and fastenings." Jan. 11, 1873.

118.—Jones, W., Manchester, engineer, "Improvements in valves for regulating the flow of steam, water, and other fluids." Jan. 11, 1873.

136.—Holman, S., 10, Laurence Pountney Lane, London, engineer, "Improvements in apparatus for raising and lowering heavy bodies, particularly applicable to the lids of gas-purifiers." Jan. 13, 1873.

154.—Scott, H. Y. D., Ealing, Middlesex, major-general, C.B., "Improvements in the treatment of sewage, and of the deposits obtained therefrom." Jan. 14, 1873.

168.—Target, J. L. T., Portsdown Road, Middlesex, C.E., "Improvements in treating excreta and sewage matters, and in apparatus employed therein, parts of the apparatus being also applicable to the drying and charring of other matters." Jan. 15, 1873.

183.—Scott, H. Y. D., Ealing, Middlesex, major-general, C.B., "Improvements in the purification of coal gas." Jan. 16, 1873.

192.—Erskine, F., Salford, and Denby, W. S., Heaton Norris, ironfounders, "An improved gully or stench-trap for preventing the escape of noxious effluvia or gases from drains or sewers, and for preventing the ingress of solid matters into the same." Jan. 17, 1873.

199.—Shanks, J., Barrhead, Renfrew, sanitary engineer, "Improvements in water-supply apparatus for jaw-boxes or sinks, baths, wash-hand basins, open boilers, drinking fountains, and street or court wells." Jan. 17, 1873.

205.—Williams, M., Lion Oil-Works, Wigan, "Improvements in the manufacture of gas." Jan. 17, 1873.

210.—Davies, R. V., Old Street, St. Luke's, Middlesex, "An improved waste-water preventer for domestic and other water-closets." Jan. 18, 1873.

INVENTIONS PROTECTED FOR SIX MONTHS ON THE DEPOSIT OF COMPLETE SPECIFICATIONS.

173.—Parker-Rhodes, C. E., 27, Somerleyton Road, Brixton, Surrey, esquire, "Illuminating public and other clocks," &c. Jan. 16, 1873.

220.—Hawkins, J. G., gas-works, Sheffield, "Improvements in the apparatus used in the manufacture of gas." Jan. 18, 1873.

236.—Stidder, J. G., 50, Southwark Bridge Road, London, sanitary engineer, "Improvements in apparatus for drawing and preventing waste of water from pipes, mains, cisterns, and other sources; also ball and supply valves for domestic and other purposes." Jan. 20, 1873.

NOTICES TO PROCEED.

2885.—Hall, C. H., New York, U.S.A., "Improvements in steam-pumps or apparatus for elevating fluids by steam." Oct. 1, 1872.

168.—Target, J. L. F., Portsdown Road, Middlesex, "Improvements in treating excreta and sewage matters, and in apparatus employed therein, parts of the apparatus being also applicable to the drying and charring of other matters." Jan. 15, 1873.

173.—Parker-Rhodes, C. E., 27, Somerleyton Road, Brixton, Surrey, "Illuminating public and other clocks, street and other names, professional and trade signs, all other signs and things publicly exhibited; and that such clocks, names, signs, and things may be distinctly visible both by day and night." Jan. 16, 1873.

236.—Stidder, J. G., 50, Southwark Bridge Road, London, sanitary engineer, "Improvements in apparatus for drawing and preventing waste of water from pipes, mains, cisterns, and other sources; also ball and supply valves for domestic and other purposes." Jan. 20, 1873.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £50 BEFORE THE EXPIRATION OF THE THIRD YEAR.

61.—Carnaby, J., "Improvements in dials for gas-regulators, and in dials in general; also in bezils or rings for dial-faces." Jan. 7, 1870.

67.—Hughan, W. H., "Improvements in the treatment of nightsoil, sewage, urinous superphosphates, gas-lime refuse, and other refuse matters, for the purpose of deodorizing, of obtaining manure, and of diluting acids with urinous mixtures." Jan. 8, 1870.

153.—Johnson, J. H., "Improvements in the treatment of acid tars obtained from Boghead, mineral schist, or petroleum." Jan. 18, 1870.

DUKE OF HAMILTON'S

LESMAHAGOW GAS COAL.

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BEALE'S IMPROVED PATENT GAS-EXHAUSTERS,

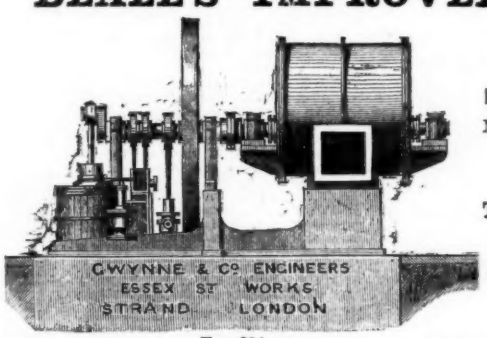

FIG. 224.

WITH

GWYNNE & BEALE'S

PATENT

IMPROVEMENTS,

Made under the personal superintendence of

Mr. BEALE,

The oldest Maker, Inventor and Patentee of

GAS-EXHAUSTING

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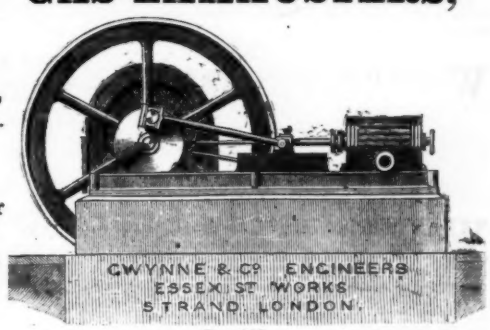

FIG. 225.

Fig. 224 represents one of those erected at the Imperial Gas-Works, Bromley, capable of passing 210,000 cubic feet of gas per hour. These Patent Machines combine the highest quality of workmanship and materials, the largest bearings and wearing surfaces, with the most perfect system of action yet discovered. Fig. 225 represents one of a series of four at the Nottingham Gas-Works, each passing 52,500 cubic feet per hour. GWYNNE AND Co. do not pretend to enter into a struggle with other makers in respect to cheapness. They have never sought to make price the chief consideration, but to produce Machinery of the very highest quality, and the most approved design and arrangement. Their prices have been estimated with a due regard to the excellence of the article produced, and when this is taken into consideration, they have no fear for the result.

The orders executed this season for Exhausters and alterations to their patented system, amount to over 3,000,000 cubic feet of gas passed per hour, and to over 200 horse power for Engines to drive them. In every instance their work is giving the greatest satisfaction.

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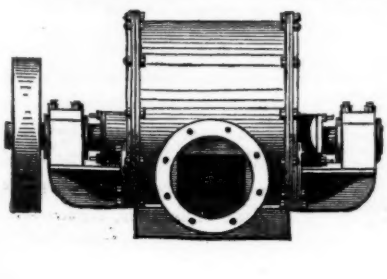

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Feb., 1873.

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South Shields, January, 1873. W. J. WARNER.

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For particulars and terms, which would be exceedingly moderate, apply to Mr. W. H. BENNETT, 42, Parliament Street WESTMINSTER, S.W.

EXHAUSTERS for SALE.—Two 60,000 feet per hour, Beale's patent, with outside bearings, as good as new.

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Apply to Mr. CHARLES HUNT, Engineer, Birmingham Gaslight Company, Windsor Street, BIRMINGHAM.

SIDMOUTH GAS-WORKS, DEVONSHIRE.

TO BE SOLD, by Auction, without reserve, at the Half Moon Hotel, Exeter, on FRIDAY, the 4th day of April next, at Two for Three o'clock precisely, subject to such conditions as will be then produced (unless previously disposed of by private contract) the SIDMOUTH GAS-WORKS, now in the occupation of Mr. Henry Ellis, comprising the Land, Gas-house, Cottage, Buildings, and Premises, in or upon which the same are carried on together with Bed constructed for 12 Retorts, Gasholders, Tanks, and Purifiers, &c., belonging thereto.

There are two Gasholders, one recently built with iron tank, capable of holding 9000 cubic feet of gas, and the other capable of holding nearly the same quantity. There are also several miles of Mains of different sizes, which, with about 80 Public Lamps belonging to the Vendors, will be included in the purchase.

The Purchaser will be required to take off at a valuation all the stock of coals, coke, &c., on the premises, and also all meters, tools, implements, and tenant's fixtures.

A railway from the Ottery Road Station, of the London and South-Western Railway to Sidmouth is in course of construction, and there can be no doubt that on its completion the present consumption of gas will be greatly increased.

Possession will be given on completion of the purchase. The land on which the above works and buildings are erected is held for the residue term of 2000 years.

Further particulars may be obtained of Mr. HENRY ELLIS, at the works; Mr. EDWARD MILLINGTON, Land Agent and Surveyor, Holbeach; or Messrs. RADFORD AND WILLIAMS, Solicitors, Sidmouth.

Sidmouth, Jan. 25, 1873.

CORPORATION GAS-WORKS, DARLINGTON.

TO ENGINEERS, IRONFOUNDERS, &c.

THE Gas Committee of the Darlington Corporation invite TENDERS for the supply and erection (not later than July 1 next) of the following:—

Contract No. 1.—Erection of New Purifying and Lime Sheds, Engine and Boiler House, Foundations for Plant, &c.

Contract No. 2.—For the supply and erection of a wrought-iron Annular Condenser.

Contract No. 3.—For the supply and erection of an Engine and Exhauster, to pass 40,000 cubic feet of gas per hour, also one Cornish Boiler.

Contract No. 4.—For the supply and erection of a wrought-iron Hydraulic Main, and Ironwork required for a Stack of 24 Retorts.

Contract No. 5.—To supply a Steam Pump, also a Portable Boiler.

Contract No. 6.—For the supply of Fire-Bricks, Tiles, &c., for 24 Brick Retorts.

Specifications can be seen, and further particulars obtained, on applying to the Engineer of the Works, to whom all tenders must be sent, on or before the 26th of February, 1873.

The Committee do not bind themselves to accept the lowest or any tender.—By order,

WM. B. EMMERSON, Engineer, &c.

RATCLIFF GASLIGHT AND COKE COMPANY.

OFFICES, 345, CABLE STREET, LONDON, E.,
Feb. 10, 1873.

NOTICE is hereby given, that a HALF-YEARLY GENERAL MEETING of the SHAREHOLDERS of this Company will be held at the Company's Offices, as above, on FRIDAY, the 28th day of February inst., at Two o'clock in the afternoon precisely, to declare a Dividend for the half year ended the 31st of December, 1872; to elect a Director in the place of John Ebenezer Bromley, Esq., who retires by rotation, but, being eligible for re-election, offers himself accordingly; to elect a Director in the place of the late Andrew Wilson, Esq., deceased; to elect an Auditor in the place of John Blacket Gill, Esq., resigned; and for other general purposes of business.

And NOTICE is hereby further given, that the register of transfers will be closed from the 20th of February inst. to the 28th of February inst., both days inclusive.

By order of the Board,
H. J. BADDELEY, Secretary.

THE BIRMINGHAM AND STAFFORDSHIRE GAS-LIGHT COMPANY.

THE Birmingham and Staffordshire Gas-light Company invite TENDERS, for a term of years, for their make of TAR, from the 1st day of January, 1874, for the whole make, or separately for the respective works at West Bromwich, Adderley Street, and Saltley.

Tenders to be sent in on or before the 1st day of April next.

The Directors do not bind themselves to accept the highest or any tender.—By order of the Board,

SAMUEL WALSH, Secretary.

Old Square, Birmingham, Jan 14, 1873.

ROBERT MACLAREN and CO.,

EGLINTON FOUNDRY, GLASGOW,

Manufacturers of all sizes of Cast-Iron Main-Pipes by an improved Patent, General Ironfounders, Gas Engineers, and Wrought-Iron Tube Makers.

CLAYTON'S PATENT SIX-WAY

VALVE only requires one valve to work two purifiers; saves more than three-fourths of the connexion-pipes; requires neither tees, elbows, nor bends; no racks or springs to get out of order.

For particulars, apply to CLAYTON, SON, & Co., Gas Engineers, Hunslet, LEEDS.

THE PATENT

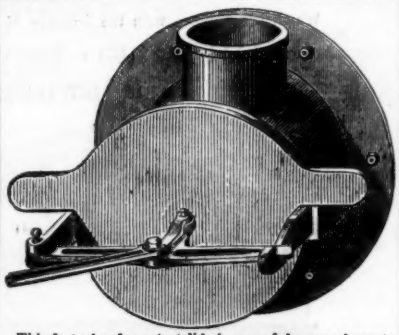
CATOPTRIC LAMP,

for Streets and all Situations where the Light ascending above the level of the Lamp is wasted,

Is now in use in Moorgate Street, London, and has been in successful operation upon Waterloo Bridge, since Oct. 7, 1871.

T. A. SKELTON, 37, Essex St., Strand, LONDON,
INVENTOR AND PATENTEE.

BOX'S PATENT FASTENING.



This fastening for retort-lids is proved by experience to be the most simple, effective, and durable of any that have ever been used.

The amount of luting is reduced more than one-half.

The lid is rapidly secured and gas saved.

For prices, references, and particulars, apply to THE SOLE MAKERS, G. WALLER AND CO., HOLLAND STREET, LONDON, S.E., and at STROUD, GLOUCESTERSHIRE.

THE THAMES BANK IRON COMPANY,

(Successors to LYNCH WHITE,)

SUPPLY FROM STOCK

CAST-IRON RETORTS, SOCKET-PIPES for GAS or WATER PURPOSES, FLANGE-PIPES for STEAM, RAIN-WATER PIPES and GUTTERS, HOT-WATER PIPES and BOILERS, and all requisite Connexions for same; also LAMP-COLUMNS, LAMPS, WROUGHT FRAMES, WROUGHT-IRON TUBING, &c., &c.

All kinds of Gas-Works Apparatus and General Castings made to Pattern or Drawing.

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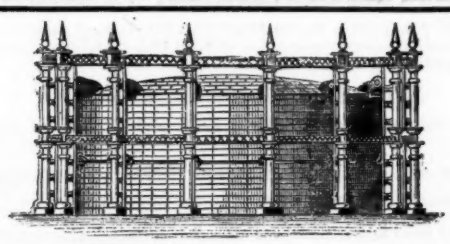
GAS ENGINEER AND CONTRACTOR FOR THE ERECTION OF GAS-WORKS,

AND FOR THE

SUPPLY OF RETORTS, FIRE-BRICKS, CAST-IRON MAINS,

AND ALL MATERIALS FOR GAS MANUFACTURE AND DISTRIBUTION.

HOPE IRON WORKS,



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ASHMORE & WHILE,

GAS ENGINEERS & CONTRACTORS,

MANUFACTURERS OF GASHOLDERS,

GAS APPARATUS OF EVERY DESCRIPTION,

Including Improved

Retort-Lids, Boilers, Cast and Wrought Iron Tanks, Iron Roofing, Bridges, Girders,

And GENERAL IRONWORK.

N.B.—Estimates for all Gas Plant and Remodelling supplied on application.

BAILEY'S Patented Inventions are

now in extensive use wherever steam is known. Bailey's Patent Steam Gauges, Pyrometers, Water Gauge Cocks, Test Pumps, Fusible Plugs, Steam and Water Valves, Safety Valves, Junction Valves, Pumps, Tell-Tales, Recorders, Lightning Conductors, Electric Telegraphs, Turret Clocks, Steam Joint Cement, Lifting Jacks, Boiler Feeders, Lime Catcher and Separator, Injectors and Ejectors, and every description of first-class Brass Work for Engines and Boilers. Gas-Works Managers who have not our large book should send for it.

16th edition, 1000 engravings, 4to., post free 2s. in stamps, weight 10 oz., cost of production £1000,

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taining details and prices of goods in our five several departments:—(1) Brass Foundry, Steam Gauges, Indicators, Feeders, and Fittings; (2) Engineers Sundries, Small Tools, and Stores; (3) Machine Pump and Fire Engine; (4) Turret Clock, &c.; (5) Electric Telegraph, A B C Instruments, Bells, and Apparatus.

J. BAILEY and Co., Albion Works, Salford, LANCASHIRE.

IMPORTANT & EXTENSIVE BUSINESS PREMISES IN NOTTINGHAM.

MESSRS. POTT and NEALE are in-structed by the Directors of the Nottingham Water-Works Company to SELL by AUCTION, at the George Hotel, Nottingham, on THURSDAY, the 27th day of February, 1873, at Four for Five o'clock precisely, all that very valuable FREEHOLD ESTATE and PROPERTY, in the Town of Nottingham, belonging to the Nottingham Water-Works Company, and consisting of and comprising their Trent Water-Works Station (near to the Nottingham Trent Bridge), with the Residence, Engine-House, and other Buildings thereon. And also the Gardens, Crofts, and several Closes and Pieces of most valuable Land around and adjoining, containing in the whole an area of 23a. 1r. 33p. or thereabouts, with the minerals under the same. A 40-horse Rotative Condensing Steam-Engine, with 3 Boilers, and other Machinery and Apparatus attached thereto, will be included in the sale, but the Pump Vacuum Vessel, Air Vessel, and the main-pipes and appliances connected thereto, and now used by the vendors, for the purposes of their Water-Works, shall continue to belong to the vendors, who will remove the same, doing as little damage as may be to the buildings and premises by such removal.

The above property has an extensive frontage to the river Trent, and access to the main entrances from the south into Nottingham by a road and street called respectively the Flood Road and Arkwright Street, and is at a short distance from the Midland and Great Northern Railway Stations. It is well adapted by reason of its locality for a passenger or goods station, or for a carriage, locomotive, or engine manufactory, iron, cotton, bleach, or dye works, for factory purposes, or for colliery works in connexion with the large Nottinghamshire coal-field which has been recently discovered and proved, and is now successfully wrought at the Clifton Colliery, situated within three-quarters of a mile or thereabouts from this estate, or for general trade and building purposes.

The Trent is a river navigable from near the Trent Bridge for boats of 40 tons burden, to Newark, Gainsborough, Grimsby, and Hull, and it gives access, by means of the Nottingham and Grantham Canals, which are situated, the former almost adjoining, and the latter within a few hundred yards of the property, and numerous other connected canals, including the Trent and Mersey Navigation and Grand Junction Canal to London, Birmingham, Manchester, Liverpool, and nearly all parts of the kingdom.

The railway communications between Nottingham and all the large towns of the kingdom, with the coal and iron districts, and with all the large ports, are also very complete, and Nottingham and its neighbourhood have a rapidly increasing population of 150,000 people or more.

Valuable beds of cannel, steam, and household coals are found in the adjacent colliery, and no doubt exist at a workable depth beneath this property.

Possession can be given at or about Midsummer next.

Printed particulars and plans and conditions of sale can be obtained on application to Thomas Hawksley, Esq., 30, Great George Street, Westminster, the Engineer of the Company; to Robert Jalland, Esq., Surveyor, Fletcher Gate, Nottingham; to the Auctioneers, Wheeler Gate, Nottingham, and 20, Cockspur Street, London; or to the undersigned,

WALTER BROWNE, Solicitor.

St. Peter's Gate, Nottingham, Jan., 1873.

CLOTH GAS-BAGS FOR MAINS,

As supplied to the Imperial, Chartered, and other London and Provincial Gas Companies. Bellows and Valves for inflating Well Dresses, Stokers Gloves, India-Rubber Suction and Delivery Hose, Gas-Tubing, Leather, India-Rubber and Gutta-Percha Machine-Bands, Sheet and Washers for Steam Joints.

T. BUGDEN, Manufacturer,
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TORBANEHILL MINERAL.

For Sale, by Tender,

FOR WHOLE OR PART,

SEVERAL THOUSAND TONS OF THE

Celebrated Torbanehill Mineral,

Saved from the fire at Torbanehill in June last.

The mineral as it at present lies has been examined and analysed by Dr. WILLIAM WALLACE, Analytical Chemist, Glasgow, who says:

"Very great care was employed to obtain reliable average samples, and the results show that the mineral is not appreciably damaged."

The results of two testings of fair samples of the Coal give 14,680 cubic feet of 43·7 candle gas.

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MR. DAVID STEWART,
128, INGRAM STREET, GLASGOW.

Mr. ALFRED LASS,

60, CORNHILL, LONDON, E.C.,

Is prepared to open the Books, and, if necessary, keep the Accounts of Gas and Water Companies.

To examine the Books and Accounts, and prepare Balance-Sheets for the information of Directors.

To assist Secretaries in preparing Balance-Sheets, according to the "Gas-Works Clauses Act, 1871;" or may be consulted with respect to Accounts generally.

SAMUEL PONTIFEX, Consulting Gas Engineer, having retired from the Great Central Gas Company, is now prepared to furnish PLANS and SPECIFICATIONS, as well as ADVISE Provincial Gas Companies as to the erection of new, or alteration and enlargement of existing works.

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J. T. B. PORTER & A. SILVERTHORNE, C.E., 1, Westminster Chambers, LONDON, S.W., Consulting Engineers.

Corporations and Companies advised on all matters connected with Gas and Water Works.

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ADVANTAGES of GAS. By J. O. N. RUTTER. A new edition.—201st Thousand. Brighton: Published by the Author.

This little book is intended for distribution by Gas Companies and the manufacturers of gas apparatus. It has done good in making known the benefits and promoting the sale of gas; and it is hoped that its usefulness might be continued and greatly extended.

Prices:—1000 copies, £8; 500 copies, £4 5s.; 250 copies, £2 5s. Any smaller number at 20s. per 100 copies.

A specimen copy free per post for three penny stamps. Covers printed specially.

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"Dear Sir,—I have used Edge's patent process for scurfing the Retorts at these works during the last twelve months, and I have great pleasure in testifying to its efficiency and economy; it is exceedingly simple, and can very readily be applied.—I am, dear sir, yours truly,

"E. Goddard, Esq." "ALFRED ROBINSON.

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WILLIAM FRASER, INVERKEITHING,

Owner of the Works at which Fire-Clay Retorts were first made), can supply

RETORTS, FIRE-BRICKS, &c., to any extent.

References can be given to managers of above a hundred Gas-Works whom he supplies.

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IMPROVED CONSUMERS GAS-METERS,

Of the best material and workmanship, carefully adjusted to the requirements of the British Sales of Gas Act and Foreign Standards of Measures.

PATENT FIXED WATER-LINE GAS-METERS,

Which are uniform with the ordinary Meters, and register with minute accuracy.

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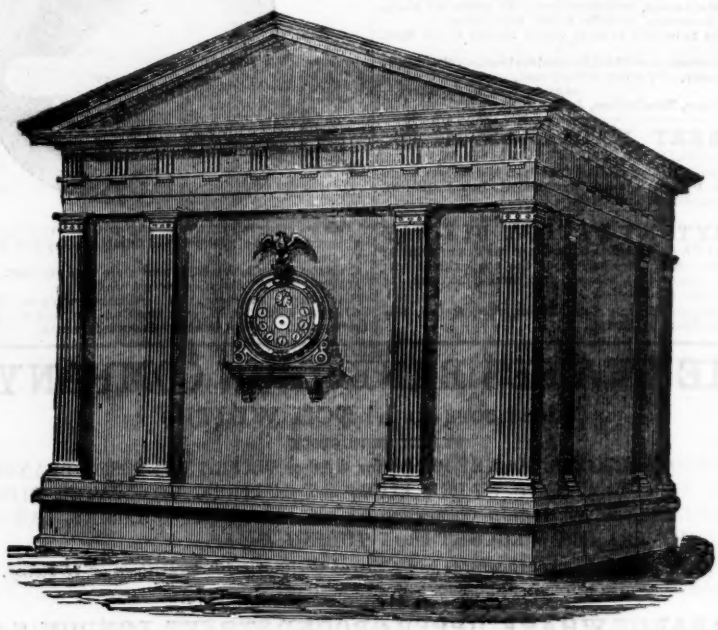

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Home and Foreign Orders promptly attended to.

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Having completed their NEW WORKS in the COMMERCIAL ROAD, for the supply of every description of GAS APPARATUS, respectfully invite the attention of GAS COMPANIES and others to their various Manufactures, especially appertaining to GAS-WORKS.

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They have lately had the pleasure of ERECTING NEW GAS-WORKS and LIGHTING the following towns:—

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They have also executed many improvements and extensions at the following Gas Companies Stations:—BIDEFORD, DAWLISH, DEVONPORT, DARTMOUTH, EXMOUTH, ILFRACOMBE, LISKEARD, ST. AUSTELL, WELLINGTON, DUBLIN, BRECON, CARDIGAN, PONTYPOOL, TOTNES, TRURO, &c., to either of which they refer with much confidence, and the most satisfactory testimony will be given of the manner in which the various works have been executed.

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Extract from Report by Dr. Letheby:—

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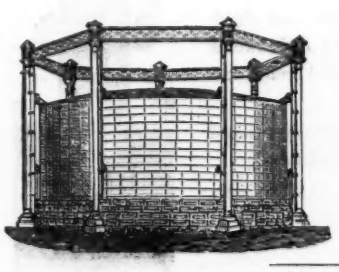

S. C. AND SONS undertake Contracts of any magnitude for the **Erection of new and Remodelling of existing Gas-Works**, for **Gasholders, Cast and Wrought Iron Tanks, Iron Roofs**, and every description of **Apparatus** for the Manufacture and Distribution of Gas.

Special attention is invited to their **"Improved Condenser,"** which is very effective, and much approved; also to their patterns of **Annular** and other **Condensers, Scrubbers**, and **Purifiers**, of all sizes, which they arrange either with **Centre** or Ordinary **Slide Valves.**

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S. C. AND SONS undertake the **Supply** and **Laying of Mains** for **Gas and Water**, and supply all Castings, Connexions, and Fittings for Retort-House, Works generally, and for Streets. They also supply **Valves** of all descriptions, Iron and Clay Retorts, Hotpressed Retort-Lids, Steel Charging-Scoops of improved make, for which they have special machinery, Improved Coke and Coal Barrows, Cross-Bars and Screws, Bolts and Nuts, Furnace and Stoking Tools, Iron and Wood Purifier-Sieves, Lead, Yarn, Borings, &c., including every requisite whatsoever for a Gas-Work, a well-assorted stock being kept of those goods most in request.

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Testimonials from Gas Engineers who have tested their qualities forwarded on application.

All orders punctually attended to, and estimates given if required.

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Of any extent at Home and Abroad,

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1, WESTMINSTER CHAMBERS, VICTORIA STREET, S.W.

BRONNER'S PATENT GAS-BURNERS give 99 per cent. of light, as compared with 27 per cent. given by ordinary burners, with equal consumption of gas.—*Vide* "Gas Referees Report," published June, 1869.

HENRY GREENE AND SON, Sole Consignees of Brönner's Patent Improvements in Gas Lighting, 16 and 17, King William Street, E.C., and 139, Regent Street, LONDON.

BELGIAN CLAY RETORTS.

J. SUGG and CO., late ALBERT KELLER, GHENT.—The removal of the import duties on Earthenware permitting the entry of Clay Retorts into England, Messrs. Sugg, of Ghent, beg to draw the attention of the Gas Companies of London, and other Cities, to the very superior quality of the RETORTS manufactured by them. They can be made of any size, in one piece, and of any form. The price will be in proportion to the weight, and very moderate in comparison to their value.

Communications addressed to J. SUGG & Co., GHENT, will receive immediate attention.

CATHELS & TERRACE'S Patent Four-WAY DISC GAS-VALVE is the simplest and best Valve for Purifiers, and as a By-pass for other apparatus in Gas-Works. It is always gas-tight, and has no springs, ground faces, or other delicate parts. By its use the flow of the gas cannot be accidentally stopped, and it never sticks.

For prices, &c., apply to the Manufacturers, Messrs. GUEST AND CHRIMES, Foundry and Brass Works, ROTHERHAM.

CATHELS'S Patent District Dry Gas-GOVERNOR is the only perfect self-acting contrivance for Regulating the Pressures in the higher levels of a district.

For prices, &c., apply to the Manufacturers, Messrs. GUEST AND CHRIMES, ROTHERHAM.

ADDISON POTTER,

WILLINGTON QUAY,

NEAR NEWCASTLE-UPON-TYNE,

Manufacturer of Clay Retorts, Fire-Bricks and every description of Fire-Clay Goods.

TO GAS COMPANIES, ENGINEERS, &c.

WOOD SIEVES.—WOOD SIEVES.

Estimates given and Contracts taken by the Manufacturer

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These Sieves are made with parallel or bevel bar, and guaranteed to be well seasoned yellow deal, and not common spruce so generally used.

N.B.—Specimens sent free on application.

JAMES OAKES & CO.,

ALFRETON IRON-WORKS, DERBYSHIRE,

AND

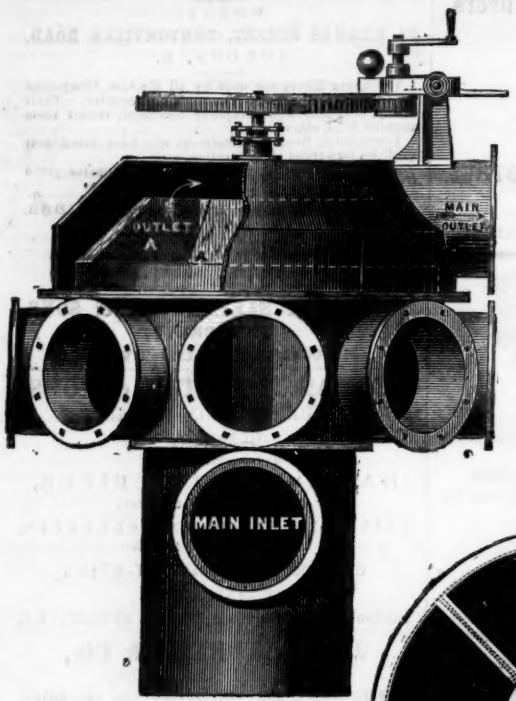
WENLOCK IRON WHARF, 20 & 22, WHARF ROAD,

CITY ROAD, LONDON, N.,

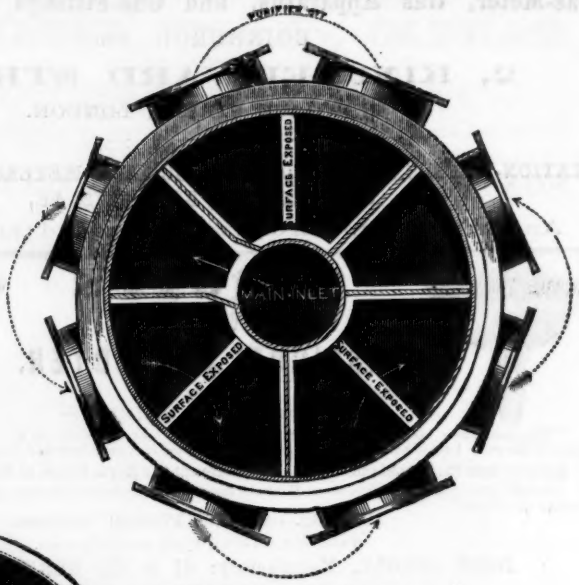
Beg to inform Gas and Water Companies and the public, that they keep in stock in London all the CASTINGS in general use in Gas and Water Works, including Iron Retorts, Socket and Flange Pipes, Bends, Branches, and Syphons of all sizes, Lamp Columns, &c., &c.

N.B.—Orders for Cast-Iron Tanks, Girders, Columns, Cylinders, and all irregular castings, will have immediate attention. CHARLES HORSLEY, Agent.

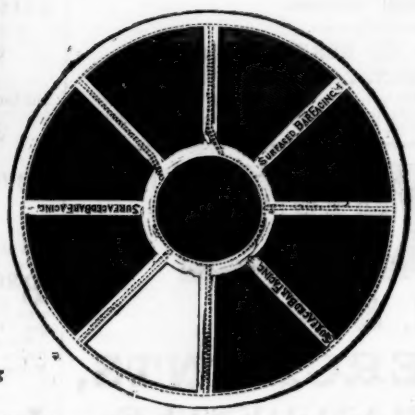
C. & W. WALKERS' PATENT CENTRE-VALVES.



Elevation of the Centre-Valve for four Purifiers. The safety cover is shown broken, to enable the Valve itself, which is inside, to be seen.



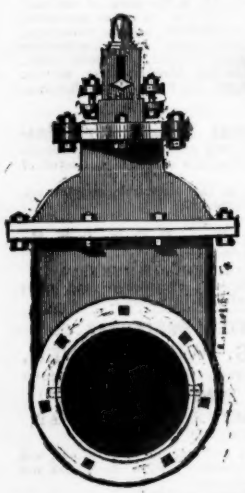
Plan of the Body, showing the Valve lying in it, with three of the facings, which were formerly exposed to settlements of dirt, carbon, naphthaline, &c., but which are now always covered by the surfaced bar-facings of the Valve. (See below.)



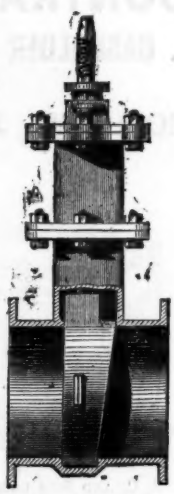
Plan of the Valve, or upper portion, showing the surfaced bar-facings referred to above.

These PATENT CENTRE-VALVES are the most perfect and certain means for working Purifiers. The Valve itself is protected from all injury inside the safety cover. The working of the Valve is so easy, and so governed by the stop-catch movement, that the Purifiers can be instantaneously changed in the dark as well as in daylight. They are scraped perfectly true, metal to metal, the facings heretofore exposed are always covered, and there is nothing more reliable, certain, and durable in a gas-works. By their use the floor of the Purifying-house is clear and level; the Valve and all connexions being beneath the floor, out of the way of working. A very considerable improvement and saving is effected in the cost of the connecting-pipes.

FOUR-WAY CENTRE-VALVES FORMING INLET, OUTLET, AND BYE-PASS.



C. & W. WALKERS'
DOUBLE-FACED GAS-VALVES.



These solidly constructed double-faced Gas-Valves are superseding the old system of the light, single-faced disc, which is too uncertain and unreliable in large bores.

They are guaranteed absolutely gas-tight. They are very massive and rigid, and by improved modes of manufacture they are produced at very little excess in cost over the old light, weak system, which is liable to spring and bend, and become leaky.

The Valve is a rigid wedge of solid cast iron, having two perfectly scraped surfaced facings fitting between the two on the body, which are also surfaced.

A spring in two short halves, and, therefore, not liable to break, is used only for scraping the front facing clean.

The front facing is vertical; the back facing forms the wedge.

At a slight additional expense both flanges are faced to bolt to main-pipes.

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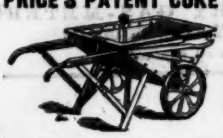

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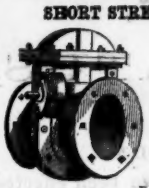

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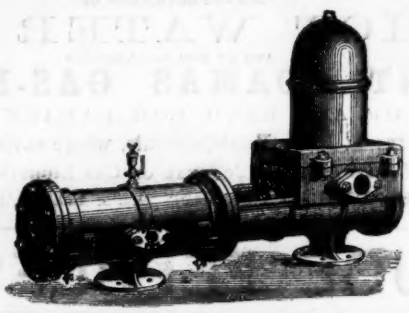

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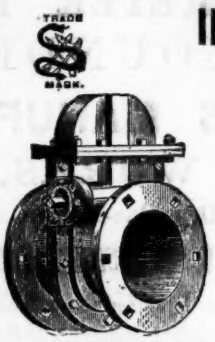

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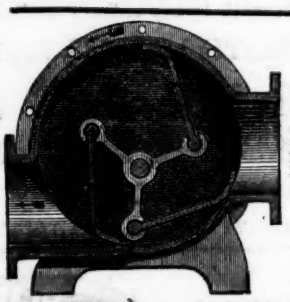

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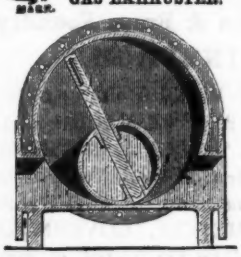

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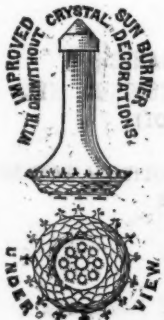

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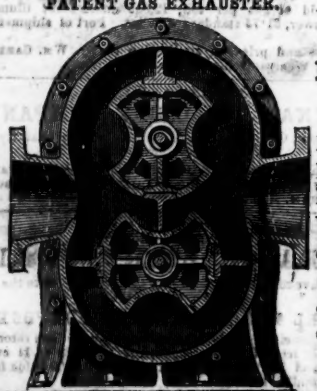

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